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Birds

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF THE
AVICULTURAL SOCIETY FOR
THE STUDY OF BRITISH AND
FOREIGN BIRDS IN FREEDOM
AND IN CAPTIVITY

EDITED BY

DAVID SETH-SMITH, F.Z.S., M.B.O.U., C.F.A.O.U., etc.

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REPORT OF THE COUNCIL FOR 1929

As the year is drawing to a close, we think we may look back and congratulate ourselves that with this 1929 volume the Avicultural Society has gone on increasing and progressing.

The Magazine, under our most able Editor, Mr. Seth-Smith, maintains its high standard. We have had many interesting articles illustrated with photographs, and have published eight coloured plates.

Our affiliated members of Australasia have made a good start and are increasing in numbers, in spite of many disadvantages they have to contend with in the way of prohibition of importation.

At the commencement of the year the American Avicultural Society was formed, with its magazine *Aviculture*, and we have allowed them the use of some of the plates that have appeared in our Magazine.

We beg to extend our very hearty thanks to all who have contributed to our welfare. Especially we would like to mention Mr. Spedan Lewis for the gift of two plates; Mr. Newman for kindly lending us four paintings by the late Mr. Goodchild of Doves for reproduction, also for his services in managing the advertisement and exchange column; Mr. Howitt Lodge for the use of a painting, and Mr. Hicks for conducting the post-mortem examinations.

Mr. and Mrs. Ezra, as in former years, again invited the members to Foxwarren Park to see the splendid collection of birds. The weather was ideal and a most enjoyable afternoon was spent and greatly appreciated by all. The experiment was tried in July of holding a meeting, at which papers were read and lantern slides were shown. This was well attended and proved a great success. We beg to tender our best thanks to the Zoological Society, who lent us their lecture hall for the occasion. The Council would like to remind members that all subscriptions are due on 1st January, and that this applies to new members who have joined during the year as well as to old members.

Members on paying are supplied with the back numbers of the Magazine from the previous January.

(Signed for the Council)

E. MAUD KNOBEL,
Hon. Secretary and Treasurer.

December, 1929.

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IN FREEDOM & CAPTIVITY

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1st JANUARY, 1929

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- ABENHEIM, RICHARD ; 65 Palace Court, W. 2. (Jan., 1928.)
- AINSWORTH, A. ; 7 Samoa Street, Kilbirnie, Wellington, New Zealand.
- AISBET, W. J. ; Norwood Road, Burwood, Victoria, Australia. (April, 1928.)
- ALLEN, A. N. ; The Rambles, Salfords, Horley, Surrey. (Sept., 1927.)
- ALLEN, M. T., F.Z.S. ; Ravenswood, Northwood, Middlesex. (March, 1925.)
- ALLENBY, FIELD-MARSHAL THE VISCOUNT, G.C.B., G.C.M.G. ; Naval and Military Club, Pall Mall, S.W. (Nov., 1922.)
- AMERICAN MUSEUM OF NATURAL HISTORY ; 77th Street and Central Park West, New York City, U.S.A.
- AMSLER, MAURICE, M.B., F.Z.S. ; Eton Court House, Eton, Windsor. (Dec., 1908.)
- ANDERSON, ALISTAIR ; Tullichewan Castle, near Balloch, Dumbartonshire. (June, 1923.)
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- ARNOLD, J. H. ; 4002 Massachusetts Street, Long Beach, California, U.S.A. (Oct., 1927.)
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- BAILY, W. SHORE-, F.Z.S. ; Boyers House, Westbury, Wilts. (Feb., 1920.)
- BAKER, E. C. STUART, F.Z.S., M.B.O.U. ; 6 Harold Road, Upper Norwood, S.E. 19. (Feb., 1904.)
- BALDWIN-WEBB, Lieut.-Col. J. ; Denmark House, Olton, Warwickshire. (April, 1927.)
- BAMFORD, WILLIAM ; Bridgecroft, Kent Road, Harrogate. (March, 1904.)

- BANNERMAN, Mrs. DAVID ; 132 Oakwood Court, Kensington, W. 14. (April, 1928.)
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- BARNARD, T., M.C., F.Z.S. ; Milner Road, Rondebosch, Cape Town, South Africa. (Sept., 1919.)
- BARNES, A. H. ; 2 Carlton Road, Putney Hill, London, S.W. 15. (May, 1921.)
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- BOTT, WILLIAM ; Gwent, Walton-by-Clevedon, Somerset. (Dec., 1928.)
- BOURKE, Hon. Mrs. ALGERNON ; 75 Gloucester Place, Portman Square, W. 1. (Feb., 1911.)
- BOUSFIELD, Miss ; Hazelgrove, New Milton, Hants. (Jan., 1908.)

- BOYD, H. TOD ; 80A Fordwych Road, N.W. 2. (April, 1927.)
- BRADSHAW, J., M.Sc., A.I.C., F.C.S. ; Ruhebank, Sulby Grove, Bare, Morecambe. (Feb., 1925.)
- BRADSHAW, GEORGE ; Ingram Road, Wahroonga, Sydney, Australia. (May, 1927.)
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- BRIGHT, HERBERT ; Woolton Tower, Woolton, near Liverpool. (June, 1914.)
- BRIGHT, MRS. HERBERT ; Woolton Tower, Woolton, near Liverpool. (Sept., 1925.)
- BROOKE, Sir BASIL, Bart. ; Colebrooke, Brookborough, Co. Fermanagh, Ireland. (Jan., 1928.)
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- BROWN, W. FERRIER ; 43 Spencer Avenue, Earlsdon, Coventry. (May, 1924.)
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- BRUNTON, J. W. ; Inveresk Lodge, Musselburgh. (June, 1923.)
- BRYAN, Mrs. A. H. ; P.O. Box 414, Balboa Heights, Canal Zone, U.S.A. (Jan., 1928.)
- BUCHANAN, A. ; 105 Victoria Terrace, Dunfermline. (Dec., 1928.)
- BUTLER, ARTHUR LARCHIN, M.Aust.O.U. ; Lower Sandy Bay, Hobart, Tasmania. (July, 1905.)
- CALVOCORESÌ, P. J. ; 35 Portman Square, W. 1. (Oct., 1916.)
- CAMPBELL, Mrs. J. P. ; 16 Arney Road, Remuera, Auckland, New Zealand. (May, 1924.)
- CAPERN, F. ; Lewin's Mead, Bristol. (Oct., 1907.)
- CARPENTER, H. H. ; 540 South Hill Avenue, Pasadena, California, U.S.A. (Sept., 1927.)
- CARR-WALKER, HERBERT ; Almsford House, Fulwith Lane, Harrogate. (June, 1917.)
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- CAYLEY, Mrs. ; Carham Hall, Cornhill-on-Tweed, Northumberland. (Jan., 1928.)
- CHANNER, Mrs. ; Webbery, Nr. Bideford, N. Devon.
- CHAPLIN, Lady DRUMMOND, G.B.E. ; Noord Hoek, Cape Province. (Nov., 1928.)
- CHAPLIN, E. W. ; The Hearne, Great Amwell, Ware, Herts. (Sept., 1903.)
- CHAPMAN, G. B., F.Z.S. ; 17 Tottenham Court Road, London, W. (Nov., 1922.)
- CHAPMAN, Miss ; 92 High Street, Birmingham. (April, 1927.)
- CHAWNER, Miss ; Thatched Holme, Wargrave, Berks. (July, 1899.)
- CHEERS, ALEC ; 6 Kingston Lane, Teddington, Middlesex. (April, 1928.)
- CHILD, F. R. ; Braemar, Down's Road, Luton, Beds. (March, 1920.)
- CHRISTIE, Mrs. G. ; Kellas, By Elgin, Morayshire. (Jan., 1913.)

- CHRISTIE-MILLER, Miss I. ; Clarendon Park, Salisbury. (May, 1926.)
- CLARK, Mrs. ALFRED ; Warren House, Iver Heath, Bucks. (Sept., 1925.)
- CLAYTON, ROBERT A. ; The White House, Adwick-le-Street, near Doncaster. (July, 1925.)
- CLEMO, J. ; 18 Claremont Road, Redruth, Cornwall. (Oct., 1927.)
- CLENDINNEN, Dr. L. J. ; 105 Collins Street, Melbourne, Australia. (Sept., 1927.)
- COCKELL, N. F. ; Durhungah, Coach Road, Newton Abbot, S. Devon. (1922.)
- COLLIN, HARRY A. ; Tynrodyn, Bangor, North Wales. (May, 1928.)
- COLLINSSPLATT, Miss JESSIE N. ; Brimptsmead, Princetown, Devon. (July, 1927.)
- COLVILLE, Miss CATHLEEN ; Magpie Cottage, Chalford Hill, Stroud, Glos. (Nov., 1928.)
- COMBE, Miss E. D. ; Earnshill, Curry Rivel, near Taunton, Somerset. (Feb., 1927.)
- COOK, S. M. ; Eastridge, Blackhill, Swansea. (Aug., 1928.)
- COOPER, Mrs. H. VICTOR ; 8 Hamstel Road, Southchurch, Southend-on-Sea. (May, 1926.)
- COOPER, JAMES ; Killerby Hall, Scarborough. (Orig. Mem.)
- COOPER, Mrs. NORAH ; 25 Talbot Road, Bournemouth. (Jan., 1928.)
- CORSAN, G. H. ; The Kellogg Estate, Box 75, Augusta, Mich., U.S.A. (Jan., 1928.)
- CORY, REGINALD R., F.Z.S. ; Duffryn, near Cardiff. (August, 1905.)
- COTTERELL, RICHARD ; Garnons, Hereford. (April, 1928.)
- COTTRILL, Mrs. H. L. ; Seven Barrows, Lambourn, Berks. (April, 1924.)
- COWLEY, H. ; The Manor House, Bubbenhall, Kenilworth. (Jan., 1926.)
- CREMER, C. H. ; Am Dobben 130, Bremen, Germany. (March, 1926.)
- CUMMIN, ALEC ; 16 Promenade Villas, Cheltenham. (April, 1928.)
- CUNNINGTON, Mrs. H. J. ; Gosfield, Halstead, Essex. (April, 1923.)
- CURA, L., & SONS ; Bath Court, Warner Street, Rosebery Avenue, E.C. 1. (Sept., 1928.)
- CURREY, Mrs. ; The Pit House, Ewell, Surrey. (Feb., 1906.)
- CURRIE, J. ; 54 Netherby Road, Edinburgh. (Aug., 1915.)
- CURZON OF KEDLESTON, Marchioness, G.B.E. ; 1 Carlton House Terrace, S.W. 1. (March, 1927.)
- CUSHNY, CHARLES ; Bath Club, 34 Dover Street, Piccadilly, W. 1. (Dec., 1926.)
- CZARNIKOW, HORACE, F.Z.S. ; Farnborough Hall, Banbury, Oxon. (March, 1924.)
- DALRYMPLE, Mrs. ; Bartley Lodge, Cadnam, Hants. (June, 1928.)
- DANBY, NORTON H. ; 4 Carlton Road, Ealing, W. (May, 1927.)
- DARLING, P. STORMOUTH ; Blackwood, Fulmer, Bucks. (June, 1928.)
- DAVIDSON, GODFREY ; Caxia Postal 68, Belem do Pará, Pará, Brazil. (Jan., 1928.)

- DAVIS, GODFREY, I.C.S., F.Z.S.; 4 Robin Grove, Westhill, Highgate, N. 6. (Aug., 1927.)
- DAWSON, R.; Fawley Manor, Wantage, Berks. (May, 1928.)
- DAYRELL-REED, Miss E.; Estherwell, West Bay, Bridport. (Feb., 1928.)
- DECOUX, A.; G ry-pr s Aix, Hte. Vienne, France. (April, 1917.)
- DELACOUR, JEAN, F.Z.S.; Cl res, Seine Inf., France. (April, 1916.)
- DELL, CHARLES; 12 Warrington Road, Harrow. (July, 1900.)
- DENLEY, CHARLES F.; Rockville, Md., U.S.A. (Jan., 1924.)
- DENNIS, Mrs. CYRIL; Oakley Hall, Market Drayton, Salop. (June, 1920.)
- DENNIS, Mrs. H. E.; Holme Manor, Pulborough, Sussex. (March, 1903.)
- DENNY, Mrs. HENRY, C.B.E., Staplefield Place, Staplefield, Sussex. (May, 1924.)
- DICKINSON, Mrs. G. W., Upper Slaughter, Bourton-on-the-Water, Gloucestershire. (Jan., 1918.)
- DICKSON, Miss V. C.; Lea Croft, Crawley, Sussex. (Oct., 1927.)
- DIEMONT, D. E. H.; Rynvliet, Oudenryn, Holland. (June, 1927.)
- DIRECTOR, THE; Zoological Museum, Tring, Herts. (1912.)
- DONALD, C. H., F.Z.S.; Egerton Hall, Dharmasala Cantt., Kangra District, Punjab, India. (March, 1906.)
- DONOVAN, H. B.; 184 Adelaide Street West, Toronto, Ontario, Canada. (May, 1925.)
- DOOLY, THOMAS L. S.; Boyne Lodge, Formby, near Liverpool. (Jan., 1924.)
- DORMAN, CLAUDE P.; 1677 Chester Avenue, Bakersfield, California, U.S.A. (April, 1928.)
- DRAKE, Mrs. F. W.; Carrick Cottage, Mylor, Falmouth, Cornwall. (Dec., 1926.)
- DRAKE, G. TYRWHITT, F.Z.S.; Sandling Farm, Maidstone. (June, 1918.)
- DREWITT, FREDERIC DAWTREY, M.A., M.D., F.R.C.P., F.Z.S.; 14 Palace Gardens Terrace, Kensington, W. 8. (May, 1903.)
- DUDLEY, H. D. W.; Stradishall Manor, Stradishall, nr. Newmarket, Suffolk. (Jan., 1928.)
- DUNLEATH, The Lady; Ballywalter Park, Ballywalter, Co. Down, Ireland. (August, 1897.)
- DUNMORE, OSCAR E.; Saxonholme, 198 Oadby Road, Wigston Magna, Leicestershire. (Oct., 1922.)
- DUVEEN, Mrs. GEOFFREY; Broadway, Limpsfield, Surrey. (Sept., 1927.)
- DUYZEND, W. C.; 123 Goudsche Singel, Rotterdam, Holland. (March, 1927.)
- EDWARDS, Mrs. A. E.; Drayton Cottage, Ruislip, Middlesex. (Jan., 1925.)
- EDWARDS, J. C.; 629 So. Grand Avenue, Los Angeles, California, U.S.A. (June, 1926.)
- ELLIOTT, F. S.; Westfield, Kelvin Road, Ipswich, Suffolk. (Nov., 1925.)
- ELPHICK, Dr. GEORGE; 118 Harley Street, W. 1. (April, 1926.)
- ELWES, Mrs. ROBERT; Little Congham, King's Lynn, Norfolk. (Dec., 1926.)
- EVANS, G.; 85 Parliament Hill Mansions, N.W. 5. (April, 1926.)
- EVANS, R. M.; Inglewood, Ratcliffe Road, Leicester. (March, 1927.)

- EVANS, VICTOR J. ; Victor Building, 9th Street Northwest, Washington, D.C., U.S.A. (Oct., 1927.)
- EUSTACE, C. H. ; c/o P.O. Box 252, Shanghai, China. (Feb., 1927.)
- EYTON-JONES, R., M.R.C.S., L.R.C.P., L.R.F.P.S. ; Holly Lodge, Broadway, Peterborough. (Sept., 1926.)
- EZRA, ALFRED, O.B.E., F.Z.S. ; (*President*), Foxwarren Park, Cobham, Surrey. (1912.)
- EZRA, DAVID, Sir, Kt., F.Z.S., M.B.O.U. ; 3 Kyd Street, Calcutta, India. (June, 1912.)
- FILLMER, H. R. ; Oakfield, Hurst Road, Hassocks, Sussex. (*Orig. Mem.*)
- FILMER, Hon. Mrs. WILSON, F.Z.S. ; Leeds Castle, Maidstone, Kent. (Nov., 1920.)
- FINN, FRANK, B.A., F.Z.S. ; c/o Grindley & Co., 54 Parliament Street, S.W. 1. (*Hon. Mem.*)
- FISHER, Mrs. C. A. D. ; The Grange, Sutton Road, Erdington, Birmingham. (Sept., 1927.)
- FLOWER, Mrs. STANLEY ; Spencer's Green, Tring, Herts. (July, 1926.)
- FOLKESTONE, VISCOUNTESS ; Alward House, Salisbury. (Jan., 1928.)
- FOLLETT, Miss R. ; 2 Alston Terrace, Exmouth, S. Devon. (Oct., 1926.)
- FOOKS, F. G. ; c/o Mon. J. Delacour, Chateau de Clères, Seine Inférieure, France. (Jan., 1926.)
- FOX, Mrs. GRETA ; Backwoods, Lindfield, Sussex. (June, 1928.)
- FREEMAN, Mrs. JOHN ; 30 Devonshire Place, W. 1. (Jan., 1928.)
- FROST, Mrs. E. K. ; Glebe House, Hayes, Kent. (Jan., 1926.)
- FROST, WILFRED ; c/o Chartered Bank of India, Sourabaya, Java. (July, 1908.)
- FULLERTON, ALAN ; Polshot Farm, Elstead, Godalming, Surrey. (July, 1927.)
- FULLER, Capt. BERNARD J. ; Oakfield, Wokingham, Berks. (Sept., 1928.)
- GARCKE, Mrs. C. ; Wye Lodge, Maidenhead. (June, 1916.)
- GAMBO, FRANK ; 5 Broadway, Flushing, Long Island, U.S.A. (Oct., 1927.)
- GARFORD, Miss M. ; 10 Rutland Gate, S.W. (Sept., 1928.)
- GHIGI, il Prof. ALESSANDRO ; Via D'Azeglio, Bologna, Italy.
- GIBBINS, WILLIAM B., F.Z.S. ; Ettington, near Stratford-on-Avon. (June, 1895.)
- GIFFORD, E. W. ; 1650 Vista Street, Oakland, California, U.S.A. (Aug., 1927.)
- GLADDING, WALTER, F.R.H.S., N.R.S. ; Old Mill Gardens, Wannock, Polegate, Sussex. (Dec., 1926.)
- GLENISTER, A. G. ; Ipoh, Perak, F.M.S. (June, 1928.)
- GODDARD, H. E. ; Birchcroft, Fetcham, near Leatherhead. (Feb., 1899.)
- GODDARD, Mrs. ; The Lawn, Swindon. (Feb., 1923.)
- GOODWIN, T. J. ; 185 Old Kent Road, London, S.E. (Jan., 1920.)
- GOSSE, Mrs. JAMES ; 9 Park Terrace, Park Side, South Australia. (July, 1923.)

- GRAINGER, Capt. LIDDELL ; Ayton Castle, Ayton, Berwickshire. (Aug., 1927.)
- GRANT, E. R. ; Hotel Roosevelt, Washington, D.C., U.S.A. (Dec., 1927.)
- GRAY, HENRY, M.R.C.V.S. ; 1 Redfield Lane, Earls Court Road, S.W. 5. (June, 1906.)
- GREEN, ROLAND, F.Z.S., The Ruskin Studio, 7 New Court, Carey Street, Chancery Lane, W.C. 2. (Sept., 1926.)
- GREENSHIELDS, J. S. ; 225 East Foothill Building, Pasadena, California, U.S.A. (June, 1927.)
- GREENWOOD, HENRY R. ; Woodbank, Harden, Bingley, Yorkshire. (Nov., 1928.)
- GREGORY, Mrs. ; Melville, Parkstone, Dorset. (Dec., 1901.)
- GREY, The Viscount of Falloden, K.G., F.Z.S. ; Falloden, Christon Bank, Northumberland. (1913.)
- GROSSMITH, Mrs. J. L., F.Z.S. ; 10 Lyndhurst Gardens, N.W. 3. (Jan., 1923.)
- GROVE, Hon. Mrs. JULIAN ; 57 Tregunter Road, London, S.W. 10. (March, 1917.)
- GROVES, ALFRED G. ; 5 Upper East Hayes, Bath. (Aug., 1926.)
- GUBBAY, Mrs. MAURICE ; 30 Hill Street, Berkeley Square, W. 1. (Feb., 1928.)
- GUILFORD, Miss H. ; 23 Lenton Avenue, The Park, Nottingham. (Mar., 1903.)
- GUILLEMARD, Lady ; 290 St. James Court, Buckingham Gate, S.W. 1. (Jan., 1928.)
- GULBENKIAN, C. S. ; 51 Avenue d'Jéna, Paris xvi^e Paris. (Dec., 1908.)
- GURNEY, DANIEL ; The Grange, North Runceton, King's Lynn. (July, 1927.)
- GURNEY, Miss DIANA ; North Runceton Hall, King's Lynn. (July, 1927.)
- GURNEY, G. H., F.Z.S. ; Keswick Hall, Norwich.
- HALL, A. JOHN ; Estate Office, Hexton Manor, Hitchin, Herts. (Feb., 1926.)
- HALL, T. WALTER ; 6 Gladstone Road, Sheffield. (Nov., 1926.)
- HAMILTON, Mrs. ; Villa Alexandra, Chernex sur Montreux, Switzerland.
- HAMILTON, Dr. Wm. ; 175 North Terrace, Adelaide, South Australia. (Jan., 1928.)
- HAMMOND, Capt. E. F. E. ; 52 Cheriton Square, Balham. (April, 1928.)
- HAMPE, ALEX. ; c/o Wm. Meyerink and Co., 66 Szechuen Road, Shanghai, China. (Jan., 1927.)
- HANKEY, ALGERNON A., F.Z.S. ; Badminton Club, Piccadilly, W. 1. (June, 1923.)
- HANSELL, FRANK A. D. ; The Croft, Muthill, Perthshire. (May, 1925.)
- HARGREAVES, Miss MOLLY ; Nazeing Park, Essex. (Nov., 1922.)
- HARMAN, Miss KNOBEL ; 6 Sackville Street, Piccadilly, W. 1. (Sept., 1928.)
- HARMSWORTH, Mrs. CECIL ; 13 Hyde Park Gardens, W. 2. (Sept., 1927.)
- HARPER, EDMUND WILLIAM, F.Z.S. ; c/o Miss A. L. Harper, 20 Howbury Street, Bedford. (Feb., 1901.)
- HARRISON, T. O. ; 127 Hastings Road, Sunderland. (March, 1918.)
- HARTLEY, Mrs. ; Lynchfield, Bishops Lydeard, Somerset. (April, 1897.)
- HARVEY, A. ; Rapparee, Bristol Hill, Brislington, Bristol. (May, 1926.)

- HARVEY, P. T. ; Farleigh, 170 King's Road, Westcliff-on-Sea, Essex. (Nov., 1926.)
- HARVEY, S. ; Northgate Street, Millswood, Adelaide, South Australia. (Feb., 1925.)
- HARVEY, The Hon. Lady ; Langley Park, Slough, Bucks. (Oct., 1906.)
- HARWOOD, Miss K. E. ; The Bungalow, 14 Park Lane, Salisbury. (Jan., 1928.)
- HASINGER, L. C. ; Indiana, Pa., U.S.A. (April, 1928.)
- HAWKINS, L. W. ; 20 Norton Folgate, London, E. 1. (June, 1924.)
- HAWORTH, JOHN T. ; 21 Bridge Street, Congleton, Cheshire. (Jan., 1928.)
- HAYLEY, J. NEWTON, F.Z.S. ; Colne Lodge, Cromer. (March, 1924.)
- HERB, THOMAS ; Croft House, Old Aylestone, Leicester. (April, 1914.)
- HELLEN, G. H. A. ; 6 Robartes Road, Bodmin, Cornwall. (Feb., 1928.)
- HENRY, WILLIAM ; 331 Webster Avenue, Chicago, Ill., U.S.A. (Aug., 1927.)
- HEUMANN, G. A. ; Ramona, Bucroft, Sydney, N.S.W. (Sept., 1913.)
- HEWITT, T. W. G. ; The Old Hall, Weelsby, Grimsby. (April, 1909.)
- HEWLINS, Miss MARY R. ; The Howe, Saint Ives, Huntingdonshire. (Jan., 1927.)
- HEYDON, C. ; 5 Corvedale Road, Craven Arms, Shropshire. (March, 1927.)
- HEYWOOD, RICHARD, F.Z.S. ; Pentney House, King's Lynn, Norfolk. (Oct., 1911.)
- HIRST, ALBERT ; 10 Talbot Avenue, Egerton, Huddesfield. (July, 1923.)
- HIRST, ROBERT S. ; The Royds, Cleckheaton, Yorkshire. (April, 1926.)
- HOBOKEN, J. H. VAN ; Rotterdamsche Ryweg, 193 Overschie, Holland. (Oct., 1927.)
- HOGARTH, Dr. FREDERICK WHEWELL, M.B.B.S. (Lond.), M.R.C.S. ; 20 Ewing Terrace, Morecambe. (Jan., 1928.)
- HOLLAS, Mrs. K. E. ; Red Scar, Grimsargh, near Preston. (Oct., 1922.)
- HONE, Capt. T. N. ; 169D Gloucester Terrace, W. 2. (Nov., 1927.)
- HOOD, HARRY S. ; Keith Theatre Building, Philadelphia, Pa., U.S.A. (April, 1925.)
- HOOLEY, Mrs. B. ; 11 Newhouse Road, Grangemouth, N.B. (March, 1927.)
- HOPKINSON, EMILIUS, C.M.G., M.A., M.B.Oxon., D.S.O., F.Z.S. ; Wynstay, Balcombe, Sussex (July to October). Gambia, West Africa (November to July). (Oct., 1906.)
- HOPSON, FRED C. ; Porchester, Newbury. (March, 1897.)
- HORNE, I. S. ; 2473 Coneston Place, San Marino, California, U.S.A. (Jan., 1928.)
- HORNE, DOUGLAS PERCY ; Cornwalls, Feldon Lane, Boxmoor, Herts. (Sept., 1928.)
- HORSBRUGH, C. B. ; Blessington House, Hillsborough, Co. Down.
- HORSFORD, D. M. ; Bosvathick Penryn, Cornwall. (Aug., 1922.)
- HOUSDEN, JAMES B. ; Brooklyn, 31 Cator Road, Sydenham, S.E. 26. (Orig. Mem.)
- HUMBLE, C. W. ; 86 Rundle Street, Adelaide, South Australia. (Nov., 1928.)

- HUMPHRIES, H. C. ; 29 Pearfield Road, Forest Hill, S.E. 23. (July, 1927.)
- HUNTING, T. CARLTON ; Gaybird Pheasantry, Great Missenden, Bucks. (June, 1925.)
- HUTCHINSON, Miss ALICE ; address unknown. (Aug., 1907.)
- HUTCHINGS, Miss MIRIAM ; Arreton, Layters Way, Gerrards Cross, Bucks.
- IMAI, SETSUJI ; 10 Hatagaya, Yoyohata, Toyotama-Gun, Tokyo-Fu, Japan. (Jan., 1928.)
- IRVINE, W. J. ; 36 Ann Street, Belfast. (June, 1926.)
- ISENBERG, A. H. ; 282 Atherton Road, Menlo Park, California, U.S.A. (Aug., 1926.)
- JABOUILLE, M. P. ; Protectoret de L'Annam, Cabinet du Résident Supérieur. (Feb., 1927.)
- JACKSON, B. ; 33 Church Street, Bingley, Yorks. (Jan., 1926.)
- JACKSON, Major A. E. BLYTHE ; Glenholme, Bladon Drive, Belfast. (Sept., 1924.)
- JACKSON, W. ; P.O. Box 326, San Mateo, California, U.S.A. (June, 1928.)
- JARDAN, I. A. ; Jordan Game Farm, Woodland, California, U.S.A. (Jan., 1928.)
- JENNISON, GEORGE, M.A., F.Z.S. ; Barwick Lodge, Disley, Cheshire. (April, 1918.)
- JOEL, S. B. ; Maiden Erleigh, Reading. (Aug., 1927.)
- JOHNSTON, ROBERT PERCY, Longthwaite Road, Wigton, Cumberland. (March, 1925.)
- JOPSON, D. F. ; Goff Nook, Barrowford, Nelson. (July, 1927.)
- KADOTA, WILLIAM ; 1016 Geary Street, San Francisco, California, U.S.A. (May, 1927.)
- KAVANAGH, THOMAS J. ; Tasker Street Wharf, Philadelphia, Pa., U.S.A. (Aug., 1927.)
- KEATOR, BEVERLEY, R.F.D. ; 12 Westport, Conn., U.S.A. (June, 1924.)
- KELL, F. P. ; 32 Grove Street, Unley Park, South Australia. (March, 1928.)
- KEMP, Robert ; Holne Cott, Stafford Place, Weston-super-Mare. (March, 1926.)
- KERR, J. ERNEST ; Harviestoun, Dollar, Scotland. (March, 1927.)
- KERSHAW, Miss MARY E. ; 7 Westcliffe Road, Birkdale, Southport. (June, 1924.)
- KEWLEY, Mrs. M. A. ; Barwick House, Yeovil, Somerset. (Sept., 1910.)
- KIRK, LAURENCE ; The Sawyers, Lt. Cornard, Sudbury, Suffolk. (March, 1927.)
- KNOBEL, Miss E. MAUD, F.Z.S., M.B.O.U. ; 32 Tavistock Square, W.C. 1. (Aug., 1916.) *Hon. Mem. (Hon. Secretary and Treasurer.)*
- LAKE, FRANK ; West Park Road, Cleadon, near Sunderland. (Jan., 1927.)
- LAMBRICK, Prebendary M. ; Blagdon Rectory, Bristol. (Jan., 1921.)
- LANCASTER, Mrs. ; 7 Victoria Terrace, Walsall. (Dec., 1923.)
- LAUDER, P. ; 646 Barker Road, The Peak, Hong-kong, China.
- LAW, SATYA CHARAN, F.Z.S. ; 24 Sukeas Street, Calcutta. (1919.)

- LEACH, C. F. ; Vale Lodge, Leatherhead, Surrey. (June, 1914.)
- LECALLIER, Madame, F.Z.S. ; 109 Rue de la Republique, Caudebec-les-Elbeuf, France. (April, 1918.)
- LEGENDRE, M. ; 25 Rue La Condamine, 17E, Paris. (June, 1928.)
- LEWIS, ARTHUR, F.Z.S. ; Brambleside, Ferndown, Dorset. (Jan., 1926.)
- LEWIS, E. H. ; Box 192, Avalon, Catalina Island, California, U.S.A.. (Sept., 1928.)
- LEWIS, GEORGE ; Morning Side, Stockton Lane, Rural, York. (March, 1927.)
- LEWIS, JAMES E. ; 1570 E. California Street, Pasadena, California, U.S.A.
- LEWIS, J. SPEDAN, F.Z.S. ; North Hall, Mortimar Crescent, N.W. 6. (Sept., 1924.)
- LEWIS, W. ; 34 Kingstone Lane, Teddington, Middlesex. (Jan., 1923.)
- LIBRARY INTERNATIONAL INSTITUT D'AGRICOLTURE, Villa Umberto, 1. Rome 10.
- LIENAU, C. H. A. ; Newbury, 23 Victoria Avenue, Unley Park, South Australia. (Oct., 1917.)
- LIGHTFOOT, J. G. ; The Gables, Upton Heath, Chester. (May, 1927.)
- LILFORD, The Lady ; Lilford Hall, Oundle, Northants. (Jan., 1898.)
- LINDLEY, KING ; 1194 Boston Avenue, Pasadena, California, U.S.A. (March, 1928.)
- LLEWELLYN, Hon. Mrs. ; Pew Hill House, Chippenham, Wilts. (April, 1927.)
- LLOYD, Mrs. ; Greenmore Hill, Woodcote, nr. Reading. (Jan., 1928.)
- LITTLEDALE, Mrs. ; Ravenhurst, Pittville, Cheltenham. (April, 1926.)
- LOCKEY, R. ; Creighton House, Morpeth. (July, 1927.)
- LOCKYER, ALFRED ; High Croft, Eversley Park Road, Winchmore Hill, N.21. (Dec., 1905.)
- LODGE, B. HOWITT ; 175 Alexandra Mansions, Judd Street, W.C. 1. (July, 1928.)
- LODGE, GEORGE E., F.Z.S. ; Hawkhouse, Park Road, Camberley, Surrey. (May, 1923.)
- LOLY, VICTOR G. ; Box 127, Anaheim, California, U.S.A. (June, 1928.)
- LONGDON, Mrs. C. A. ; Arreton, Epsom Road, Guildford. (Feb., 1909.)
- LOOMIS, H. B. ; 464 California Street, San Francisco, California, U.S.A. (March, 1926.)
- LOVELACE, The Countess of ; Wentworth House, Chelsea Embankment, S.W.3. (May, 1906.)
- LOVETT, C. ; Glendale Park, Nashville, Tenn., U.S.A. (Dec., 1912.)
- LOWE, Rev. T. R. ; 115 Wells Street, Camberwell, S.E. 5. (June, 1927.)
- LUDWIG, Herr OTTO ; Merseburgerstrasse 20, Halle a.d. Saale, Germany. (Jan., 1925.)
- LUIG, Dr. BRUNO ; 7 Avenue Eugène, Peasky, Bruxelles. (Nov., 1924.)
- LYON, Capt. the Hon. MICHAEL ; Glamis Castle, Glamis, Forfarshire. (May, 1927.)
- MCASHAN, H. N. ; 1144 North Central Avenue, Glendale, California, U.S.A. (Aug., 1927.)
- MCCALL, C. HOME, C.B.E. ; San José, Mount Road, Hastings. (June, 1923.)

- McCORMICK-GOODHART, Commander LEANDER, R.N.V.R. Retd., O.B.E., F.R.G.S.; Langley Park, Hyattsville, Maryland, U.S.A.
- McCORQUODALE, Mrs.; Cound Hall, Shrewsbury. (Jan., 1920.)
- McDONALD, Miss B.; The Cottage, Hollington Park, St. Leonard's-on-Sea. (Jan., 1922.)
- McGREDY, SAMUEL; Woodside Cottage, Portadown, Northern Ireland. (June, 1928.)
- McLINTOCK, Miss M. H.; The Grove, Catton Grove Road, Norwich. (July, 1927.)
- MACKAY, K. STEWART; The Manor House, Esher, Surrey.
- MACKIE, PHILIP C.; Spe-Cott, Ancaster Road, Far Headingley, Leeds. (Jan., 1926.)
- MACKLIN, C. H., M.R.C.S., L.R.C.P.; 90 Dunstable Street, Amptill, Beds. (May, 1923.)
- MACONECHY, Mrs. A. C.; 39 Palliser Road, Baron's Court, W. 14. (Sept., 1928.)
- MALONE, Mrs. M. L'ESTRANGE; West Lodge, Malton, Yorks. (Jan., 1902.)
- MANCHESTER PUBLIC LIBRARIES; Reference Library, Piccadilly, Manchester. (July, 1913.)
- MANDER, J. D.; Ash Ghyll, Bromley Road, Bingley. (Aug., 1927.)
- MARRIOTT, Mrs.; The Grange, Oddingley, near Droitwich. (June, 1927.)
- MARESI, POMPEO M.; 36 W. 44th Street, New York, N.Y., U.S.A. (June, 1924.)
- MARRINER, JOHN SUMNER; Newlands Cottage, Eynsham, Oxon. (Oct., 1923.)
- MARSDEN, J. W., F.Z.S.; Bank's Lane, Heysham Harbour, Lancs. (March, 1914.)
- MARSHALL, ARCHIBALD McLEAN, F.Z.S.; Chitcombe, Brede, Sussex. (Jan., 1906.)
- MARTIN, Miss K.; Oakene, Otley, Yorkshire. (May, 1928.)
- MATSUNAGA, YASHMORI; Kashima-Machi, Fujigon, Shizuoka-ken, Japan. (March, 1928.)
- MAVROGORDATO, Mrs. T.; Tanglewood, South Godstone. (July, 1923.)
- MAXWELL, C. T.; 1 Shardcroft Avenue, Herne Hill, S.E. 24. (Dec., 1908.)
- MAXWELL-JACKSON, Miss M.; Percy House, Scatton, Knaresborough, Yorks. (Jan., 1913.)
- MAYER, F. W. SHAW; c/o Australia House, Strand, London; "Wulfruna," 88 Concord Road, Homebush, Sydney, Australia. (Aug., 1922.)
- MAYNARD, C. GORDON; Springfield, Northaw, Potters Bar, Herts. (Aug., 1928.)
- MEADE-WALDO, E. G. B., F.Z.S., M.B.O.U.; Stonewall Park, Chiddingstone, Kent. (Jan., 1895.)
- METZGER, C. T.; 6312 So. Ashland Avenue, Chicago, Ill., U.S.A. (1923.)
- MILLER, S. P.; Northend, Gloucester Road, Teddington.
- MILLER, Rev. T. W. T.; The Rectory, Southwick, Sussex. (Sept., 1924.)
- MOODY, A. F.; Lilford, Barnwell, Peterborough. (July, 1926.)
- MOORE, H.; Chapel Road, Tadworth, Surrey. (July, 1928.)

- MOORE, ROBERT T. ; 1420 East Mountain Street, Pasadena, California, U.S.A.
Summer residence till 10th Sept., Guilford, Maine, U.S.A. (July, 1928.)
- MORTIMER, Mrs. ; Wigmore, Holmwood, Surrey. (Orig. Mem.)
- MOSS, Mrs. W. E. ; The Manor House, Sonning-on-Thames, Berks. (March, 1928.)
- MOTT, B. ; 11 Wheellys Road, Edgbaston, Birmingham. (Dec., 1926.)
- MOUNTAIN, Capt. WALTON ; Groombridge Place, Kent. (Feb., 1923.)
- MULVEY, W. E. ; 5 Overleigh Road, Chester. (Jan., 1921.)
- MUNTZ, MAJOR A. Irving ; Eechinswell House, Nr. Newbury. (Nov., 1926.)
- MURAT, PRINCE PAUL, F.Z.S. ; 68 Rue de la Faisanderie, Paris XVI. (July, 1923.)
- MUSEUM OF COMPARATIVE ZOOLOGY ; Cambridge, Mass., U.S.A.
- NASH, Dr. IRA E. ; 1707 Medical Art's Building, Dallas, Texas, U.S.A.
(June, 1928.)
- NATIONAL ZOOLOGICAL PARK (The Superintendent); Washington, Dt., U.S.A.
- NELSON, RICHARD, 735 Holderness Road, Hull. (April, 1925.)
- NEVILL, Capt. T. N. C., F.Z.S. ; 48 Sloane Square, S.W. 1. (July, 1917.)
- NEWMAN, T. H., F.Z.S., M.B.O.U. ; Verulam, Forty Lane, Wembley Park, Middlesex. (May, 1900.)
- NEWMARCH, C. T., F.Z.S. ; Gamage's Ltd., Holborn, W.C. (Aug., 1915.)
- NEW YORK ZOOLOGICAL SOCIETY, 185th Street and Southern Boulevard, New York, U.S.A.
- NICOL, HAMISH, F.R.C.S., F.Z.S. ; Hillside, Christchurch Road, Hampstead, N.W. 3. (Jan., 1926.)
- NICHOLS, WALTER B., M.B.O.U. ; Stour Lodge, Bradfield, Manningtree. (Jan., 1907.)
- NICHOLSON, ALFRED, E. ; Blenheim, Forthview Terrace, Blackhall, Midlothian. (Feb., 1925.)
- NOPS, RONALD A. ; 4 Amherst Road, West Ealing. (March, 1927.)
- NORTH, W. N. D. ; Meadow Court, Stoughton Drive, Leicester. (Dec., 1924.)
- OBERHOLSER, HARRY C. ; 2805 18th Street, N.W. Washington, D.C., U.S.A.
(Oct., 1903.)
- OGILVIE, Mrs. BRENDA ; Des Carbieres, Rue Jeanne Jugan, St. Servan, France. (May, 1927.)
- OGLE, BERTRAM SAVILLE, M.B.O.U. ; Mill House, Steeple Aston, Oxford. (Dec., 1902.)
- OHNO, YASUSHI ; Hankyu Kotoyen Tieryujo-Kita, Nishinomiya Post Office, Kobe, Japan. (June, 1927.)
- OKADA, Mr. RIHEI ; 194 Itami-machi, Hiogo-ken, Japan. (March, 1928.)
- O'REILLY, NICHOLAS S. ; 144 Eastern Road, Kemp Town, Brighton. (Dec., 1894.)
- ORMSBY, Miss E. M. ; Behmont Bungalow, Forest Lane, Harrogate. (Nov., 1927.)

- OSTREHAN, CLEMENT ; Kingston Rectory, Worcester. (Jan., 1928.)
- OTAKI, J. T. ; Nippon, 48 Pembroke Road, Seven Kings, Essex. (April, 1928.)
- PACKER, GEORGE F. ; 38 Croydon Avenue, Croydon, Sydney, Australia. (April, 1925.)
- PAINTER, K. V. ; 3240 Fairmont Boulevard, Shaker Heights, Cleveland, Ohio, U.S.A. (April, 1926.)
- PALMER, G. E., F.Z.S. ; 83 Park Street, Camden Town, N.W. 1. (March, 1926.)
- PAM, Major ALBERT, F.Z.S. ; Wormleybury, Broxbourne, Herts. (Jan., 1906.)
- PATRICK, LEON, M.D. ; Smith Grote Building, Orange, California U.S.A. (Dec., 1926.)
- PEAT, Miss ; Edgarley, Broomfield Avenue, Palmers Green, N. 13. (March, 1927.)
- PENROSE, FRANK G., M.D., F.Z.S., M.B.O.U. ; Woodbury, 9 Grove Road, Eastcliff, Bournemouth. (Dec., 1903.)
- PEPPER, HERBERT ; 21 Bromley Road, Catford, S.E. 6. (June, 1928.)
- PERREAU, Mrs. G. A. ; 16 Evelyn Court, Lansdowne Terrace, Cheltenham. (Sept., 1916.)
- PETERS, Mrs. ; Ladies' Army & Navy Club, 27 St. James's Place, S.W. 1. (May, 1928.)
- PETTIGREW, M. ; 6 Fifth Avenue, Kelvinside, Glasgow, W. (Jan., 1920.)
- PHILLIPS, Dr. JOHN C. ; Wenham, Mass., U.S.A. (March, 1910.)
- PHILLIPS, Major F. LORT ; Down Grange, Basingstoke, Hants. (Feb., 1928.)
- PICKFORD, RANDOLPH JOHN ; Etherley Lodge, Nr. Bishop Auckland. (Feb., 1903.)
- PIKE, L. G., F.Z.S. ; King Barrow, Wareham, Dorset. (1912.)
- PILKINGTON, Mrs. ; Dean Wood, Newbury. (April, 1927.)
- PITHIE, Miss D. E. ; 68 Clarendon Road, Southsea, Portsmouth. (Jan., 1918.)
- PLATH, KARL ; 2847 Giddings Street, Chicago, U.S.A. (July, 1924.)
- POLTIMORE, Lady ; Court Hall, North Molten. (Jan., 1926.)
- PORTER, Mrs. G. M. ; Steepphill, Farnham, Surrey. (April, 1928.)
- PORTER, SYDNEY, F.Z.S. ; Selwyn House, Old Normanton, Derby. (April, 1920.)
- PORT, Miss J. ; Twisly, Catsfield, Battle, Sussex. (Oct., 1928.)
- POTTER, BERNARD E., M.B., M.R.C.S., L.R.C.P., F.Z.S. ; 17 Portland Place, W.
- POTTER, W. H. ; Whetherill, Fitzillian Avenue, Harold Wood, Essex. (July, 1926.)
- PRATT, J. CLEVELAND ; Lansell Road, Toorak, Victoria, Australia. (April, 1928.)
- PRESTWICH, ARTHUR A. ; Kent's Farm, Winsor, nr. Southampton. (Jan., 1928.)
- PRESTWICH, Mrs. ARTHUR A., F.Z.S. ; Kent's Farm, Winsor, nr. Southampton. (May, 1924.)
- PREVITÉ, DOUGLAS A. ; Fox Hill House, Keston, Kent. (May, 1928.)

PRINCETON UNIVERSITY LIBRARY ; U.S.A.

PROCTER, Mrs. ; Cullecoats, The Ridgeway, Asten Wood, Gerrard's Cross. (Sept., 1926.)

PURVIS, Mrs. C. J. ; West Acres, Alnwick, Northumberland. (Oct., 1920.)

PYCRAFT, W. P., A.L.S., F.Z.S., M.B.O.U., etc. ; British Museum (Nat. Hist.), Cromwell Road, S.W.7. (Nov., 1904.) (*Hon. Mem.*)

PYMAN, Miss E. E. ; West Hartlepool. (June, 1919.)

QUINCEY, R. S. DE Q. ; The Vern, Bodenham, Hereford. (April, 1913.)

RAE, SAMUEL ; 64 Muslin Street, Glasgow. (April, 1927.)

RAE, WM. OYE ; P.O. 59, Kobe, Japan. (March, 1927.)

RATTIGAN, Capt. G. E. ; 7A Croft Terrace, Paignton, S. Devon. (Aug., 1908.)

REEVE, Capt. J. S., F.Z.S. ; Leadenham House, Lincoln. (March, 1908.)

REICHARD, M. ; Berlin-Wilmersdorf, Mansfelder St. 12A III, Germany. (March, 1928.)

REVENTLOW, AXEL ; Koebmand, Stationsvej 36, Odense, Denmark. (Jan., 1928.)

RHEAM, G. W. ; Yewhurst, Freshfield, Liverpool. (March, 1928.)

RICARDO, Mrs. ; Colebrooke House, Aldwick, near Bognor. (July, 1926.)

RICHARDSON, C. S. ; 489 Lea Bridge Road, Leyton, E. 10. (April, 1928.)

RIVERS, Major E. R. ; 29 Lansdowne Road, Holland Park, W. 11. (June, 1928.)

ROBERTS, H. ; Bagatelle, Market Harborough. (Aug., 1927.)

ROBERTS, Miss IDA ; Beaumaris, Montpelier Street, Hobart, Tasmania. (Jan., 1923.)

ROBISON, ANSEL W. ; 1072 Market Street, San Francisco, U.S.A. (Feb., 1927.)

ROBINSON, JOHN H. ; 23 Cavendish Street, Ramsgate. (Sept., 1927.)

ROGERS, H. E., F.Z.S. ; Zoological Park, Emswood Road, Mossley Hill, Liverpool. (June, 1919.)

ROGERS, Col. J. M., D.S.O., F.Z.S., M.B.O.U. (late Royal Dragoons) ; Riverhill, Sevenoaks. (April, 1907.)

ROGERS, Mrs. ; Keston Mount, Talbot Road, Bournemouth. (Feb., 1925.)

ROOPER, Mrs. F. ; 11 Maze Hill, St. Leonard's-on-Sea. (Aug., 1924.)

ROTHSCHILD, JAMES DE ; 18 Kensington Palace Gardens. (March, 1923.)

ROTHSCHILD, LIONEL DE, M.P. ; 46 Park Street, W. 1. (Nov., 1913.)

ROTHWELL, JAMES E. ; 153 Sewall Avenue, Brookline, Mass., U.S.A. (Oct., 1910.)

ROYAL ZOOLOGICAL SOCIETY OF IRELAND ; Phoenix Park, Dublin. (Oct., 1905.)

RUDD, W. A. ; 180 Bishopsgate, E.C. 2. (Jan., 1927.)

RUMSEY, LACY ; 23 Rua de Serpa Pinto, Villa Nova de Gaya, Oporto, Portugal. (April, 1919.)

RUSSELL, Mrs. ; Oaklands, Hook, Basingstoke. (Aug., 1926.)

- RUTHERFORD, E. G. ; 1115 Carlford Way, Beverly Hill, California, U.S.A. (Jan., 1929.)
- RYAN, B. J. ; Executive Engineer, P.W.D. ; Jaipur State, Jaipur, India. (Aug., 1926.)
- RYECROFT, Mrs. ; Cotwell Court, Cirencester, Glos. (Oct., 1927.)
- ST. QUINTIN, WILLIAM HERBERT, F.Z.S., M.B.O.U. ; Scampston Hall, Rillingon, York. (Orig. Mem.)
- SALKELD, WILLIAM ; Ravenswood, Kirkoswald, R.S.O., Cumberland. (June, 1922.)
- SANDBACH, Miss VIOLET, 48 Cadogan Square, S.W. 1. (Dec., 1926.)
- SAWREY-COOKSON, Miss JUNE ; 186 Cromwell Road, London, S.W. 5. (Sept., 1923.)
- SCHMIT-JENSEN, H. O. ; Veterinary Research Officer, Experimental Station, Isle of Lindholm, c/o P.O. Box 42, Stege, Denmark. (Dec., 1927.)
- SCHULZ, C. ; Arusha, Tanganyika Territory. (July, 1926.)
- SCHÜTZE, EDUARD ; Eystrup, Weser, Germany. (Feb., 1927.)
- SCHUYL, D. G. ; Kralingscheweg 332, Rotterdam, Holland. (Jan., 1914.)
- SCLATER, W. L., M.A., F.Z.S. ; 10 Sloane Court, S.W.3. (Aug., 1904.)
- SCOTT, Capt. B. HAMILTON ; Hamildean, Ipswich. (1912.)
- SCOTT-HOPKINS, Capt. C. ; Low Hall, Kirby Moorside, Yorks. (July, 1928.)
- SCRIBE, Monsieur RENÉ ; 38 Coupure, Gand, Belgium. (Oct., 1925.)
- SEPPINGS, Lieut.-Col. J. W. H., F.Z.S. ; c/o Lloyd's Bank, Ltd., Cox & King's Branch (K. Section), 6 Pall Mall, London, S.W. 1. (Sept., 1907.)
- SETH-SMITH, DAVID, F.Z.S., M.B.O.U. ; Zoological Society, Regent's Park, N.W. 8. (Dec., 1894.) (*Editor.*)
- SHAKESPEARE, WALTER ; Sefton, St. George's Hill, Weybridge. (Aug., 1926.)
- SHANNON, Mrs. W. J. ; c/o Col. W. J. Shannon, C.M.G., D.S.O., Army Headquarters, Delhi, India.
- SHENSTONE, Mrs. ; Chantry House, Hurstpierpoint, Sussex. (April, 1925.)
- SHERRIFF, A., F.Z.S. ; Edge Hill, 8 Ranulf Road, N.W. 2. (March, 1923.)
- SHIERS, Mrs. P. H. ; Brookfield, Cheadle, Cheshire. (Jan., 1926.)
- SHORTT, JAMES ; Burwood, Stranmillis Road, Belfast. (Jan., 1928.)
- SICH, HERBERT LEONARD ; Grayingham, Farncombe Road, Worthing, Sussex. (Feb., 1902.)
- SILVER, ALLEN, F.Z.S. ; 18 Baneswell Road, Newport, Mon.
- SIMPSON, ARCHIBALD ; Stone Gappe, Bardsey, Yorks. (Feb., 1901.)
- SIMPSON, H. W. ; 6 Barry Road, Stonebridge, Willesden, N.W. 10. (Nov., 1924.)
- SINGLETON, JOHN H. ; 29 Windlesham Gardens, Brighton. (May, 1928.)
- SISSONS, H. P. ; 8 Potter Street, Worksop, Notts. (April, 1927.)
- SLADE, G. J. ; Shenley, Wilton Crescent, Southampton. (Feb., 1915.)
- SLEIGH, Dr. A. H. ; Denmark House, Holbrook, Ipswich. (Jan., 1928.)
- SMETZ-MONDEZ, Dr. J. G. ; La Hétraie, Genval, Belgium. (Aug., 1924.)
- SMITH, F. S. Le BLANC ; Cairns, 7 Laburnham Road, Maidenhead. (Feb., 1927.)

- SMITH, G. OSWALD ; 19 Hill Street, Mayfair, W. 1. (Aug., 1927.)
- SMITH, H. B. ; 3 Claremont Road, Redruth, Cornwall. (Oct., 1927.)
- SMITH, PARIS ; 5 Forest Rise, Whipps Cross, E. 17.
- SMITH, PAUL H. ; 11 Parkhill Road, Hampstead, N.W. 3. (June, 1927.)
- SMITH, W. PROCTOR, F.Z.S. ; Moorlands, Broad Road Sale, Manchester. (Nov., 1917.)
- SMITH, W. W. ; Cranmer, Dower Avenue, Wallington, Surrey. (April, 1920.)
- SNAPE, Major A. E., O.B.E. ; Malvern, Lower Walton, Warrington. (March, 1918.)
- SNELL, Mrs. NORRIS ; Redcote, Paget Road, Ipswich. (Feb., 1928.)
- SOUTHCOFF, GEORGE DE, C.M.Z.S. ; 9-11 Via S. Spirito, Florence, Italy. (1921.) (*Hon. Mem.*)
- SOUTHPORT CORPORATION, CURATOR OF ; Hesketh Park, Southport. (Jan., 1904.)
- SPEED, Mrs. J. E. ; Mearacot, Ruislip, Middlesex. (Sept., 1926.)
- SPENCER, HENRY ; Yew Court, Scalby, Yorkshire. (Sept., 1928.)
- SPRAWSON, EVELYN ; M.C., M.R.C.S., F.Z.S., Cranford, Welcomes Road, Kenley, Surrey. (June, 1923.)
- SPROSTON, Mrs. ; Elm House, Nantwich, Cheshire. (June, 1917.)
- SPURWAY, N. B. ; Glenwood, Stoneygate, Leicester. (April, 1923.)
- SQUIRE, Rev. C. ; Warblington House, Havant, Hants. (April, 1927.)
- STARK, J. ; Woods Cottage, Haddington, Scotland. (Jan., 1924.)
- STENT, STIRLING ; Beechlands, Bedhampton, Havant, Hants. (March, 1924.)
- STERRETT, H. R. ; Roseway, Hooper Avenue, Pennsylvania, Exeter, S. Devon. (Feb., 1926.)
- STEVENS, H. ; c/o Midland Bank, Ltd., Tring. (Oct., 1911.)
- STEWART, JOHN, M.B.O.U. ; The Hermitage, Elstead, Surrey. (June, 1926.)
- STILLMAN, PAUL F. ; 25 Ocean Avenue, Seabright, New Jersey, U.S.A.
- STOKES, Capt. H. S., F.Z.S. ; Longdon, Stafford. (Oct., 1922.)
- STOREY, Mrs. A. ; Hawling Manor, Andoverford, Glos. (Nov., 1912.)
- STRINGFELLOW, B. ; 2006½ Sixth Avenue, Los Angeles, California, U.S.A. (Aug., 1927.)
- STRUBEN, Mrs. F. ; Spitchwick Manor, Ashburton, S. Devon. (Jan., 1923.)
- SUDELEY, THE LORD ; 8 Rutland Court, S.W. 7. (Dec., 1927.)
- SUGGITT, ROBERT ; Suggitt's Lane, Cleethorpes, Grimsby. (Dec., 1903.)
- SUMMERSKILL, C. C. ; 19 Alma Road, Winton, Bournemouth. (March, 1925.)
- SUTCLIFFE, ALBERT, F.Z.S. ; Beechfield, Grimsby. (Feb., 1906.)
- SYDENHAM, The Lady ; 101 Onslow Square, S.W. 7. (Feb., 1928.)
- SYKES, JOHN ; Whitehouse Cottage, Inveresk, Musselburgh. (Jan., 1912.)
- TAKANO, T. Z. ; Koyama, 28 Asagaya, Soginamimachi Toyotamagun, Tokyo-fu, Japan. (Jan., 1921.)
- TAKA-TSUKASA, PRINCE NOBUSUKE, F.Z.S. ; 1732 Kami Megro, Tokyo-fu, Japan. (Feb., 1914.)

- TALBOT-PONSONBY, C. G. ; Glebe House, Lindfield, Hayward's Heath, Sussex. (May, 1927.)
- TANNER, Dr. FRANK L. ; Vanvert House, Guernsey. (Jan., 1914.)
- TARONGA ZOOLOGICAL PARK TRUST ; Mosman, Sydney, Australia. (Aug., 1913.)
- TAVISTOCK, The Marquess of, F.Z.S. ; Warblington House, Havant, Hants. (1912.)
- TENNANT, Hon. STEPHEN ; Mulberry House, 37 Smith Square, S.W. 1. (April, 1926.)
- TESCHEMAKER, W. E., B.A. ; Ringmore, Teignmouth, Devon. (May, 1904.)
- THOM, ALFRED A. ; Whitewell Lodge, Whitchurch, Salop. (June, 1913.)
- THOMAS, HENRY ; 15 Clinning Road, Birkdale, Southport. (Jan., 1895.)
- THOMASSET, BERNARD C., F.Z.S. ; Seend, Near Melksham, Wilts. (July, 1896.)
- THOMSON, Dr. ; Bankstown, near Sydney, Australia. (Jan., 1926.)
- THOMPSON, Mrs. A. C. ; Glaisdale, Ely, Cambs. (Dec., 1924.)
- TODD, HORATIO ; Bromleigh, Neill's Hill, Belfast. (Aug., 1924.)
- TOMLINSON, MALCOLM R. ; Shepherd's House, Inveresk, Midlothian. (April, 1913.)
- TOWNSEND, S. M. ; 3 Swift Street, Fulham, London, S.W. (*Orig. Mem.*)
- TRANSVAAL MUSEUM ; The Director, Transvaal Museum, Pretoria. (Jan., 1921.)
- TRAVERS, Mrs. J. ; Windmill Cottage, Mayfield, Sussex. (Dec., 1903.)
- TURNER, H. B. ; Malverleys, near Newbury. (April, 1928.)
- TURNER, HERBERT J. ; Tremadoc, Keyberry Road, Newton Abbott. (Jan., 1925.)
- UPPINGHAM SCHOOL ; the School Library, The Old School House, Uppingham. (Nov., 1920.)
- VALENTINE, ERNEST ; 7 Highfield, Workington. (May, 1899.)
- VAN HEYST, A. ; Wijk by Duurstede, Holland. (July, 1924.)
- VENNER, Rev. P. K. ; 17 Bisham Gardens, Highgate, N. (April, 1923.)
- VENNING, H. C. ; Willett, Bicknaller, Taunton. (Jan, 1927.)
- VIERHELLER, GEO. P. ; St. Louis Zoological Park, St. Louis, Mo., U.S.A. (March, 1928.)
- VILLIERS, Mrs. T. L. ; Steuart House, Colpetty, Colombo, Ceylon. (Feb., 1927.)
- VIVIAN, Hon. Mrs. ; Mas des Chênes, Vence, A.M., France. (Aug., 1928.)
- VLASTO, Mrs. ; Binfield Park, Bracknell, Berks. (March, 1927.)
- VOIGT, WALTER ; 13, Feodorastrasse, Jena, Germany. (Jan., 1926.)
- VROOM, Mrs. DOUGLAS ; 555 South Wilton Place, Los Angeles, California, U.S.A. (Jan., 1929.)
- WADDELL, Miss E. G. R. PEDDIE ; 4 Great Stuart Street, Edinburgh. (Feb., 1909.)
- WALKER, Miss H. K. O. ; Chesham, Bury, Lancs. (Feb., 1895.)
- WALL, Mrs. ; Meadowside, Marlborough, Wilts. (Nov., 1924.)

- WARNEFORD, WALTER W. H., O.B.E.; The Wyndhams, Torbay Road, Torquay. (Oct., 1926.)
- WARNEFORD, Mrs.; The Wyndhams, Torbay Road, Torquay. (Oct., 1926.)
- WAUD, Capt. L. REGINALD, F.Z.S.; Bradley Court, Chieveley, near Newbury. (May, 1913.)
- WAVERTREE, Lady; Sussex Lodge, Regent's Park, N.W. 1. (Aug., 1926.)
- WAXMAN, A. E. WRIGHT DE BERRI; Maitai, Murray Road, Beecroft, N.S.W.
- WEBB, C. S.; 26 Osborne Road, Willesboro', Ashford, Kent. (March, 1928.)
- WEBSTER, CHARLES A., the Very Rev. Dean of Ross; The Deanery, Rosscurbery, Co. Cork, Ireland. (Feb., 1927.)
- WESTON, DENYS, F.Z.S.; 19 Strand, Dawlish, S. Devon, (Feb., 1926.)
- WESTMACOTT, Lady; 6 rue Bel Respiro, Monte Carlo, Principanti de Monaco. (Dec., 1928.)
- WHALE, CYRIL M., F.Z.S.; 289 Brixton Road, S.W. 9. (Feb., 1925.)
- WHIPHAM, Mrs. U. F., F.Z.S.; 34 Westbourne Park Road, W. 2; and St. Loyes, Heavitree, Exeter. (July, 1921.)
- WHITE, JOHN YORK; Celandine, 138 Verdant Lane, Catford, S.E. 6. (Jan., 1925.)
- WHITLEY, HERBERT, F.Z.S.; Primley Hill, Paignton, S. Devon. (Sept., 1923.)
- WHITTINGHAM, W. NEVILLE; Stonefall Hall, near Harrogate. (Feb., 1928.)
- WILDEBOER, Dr. H. G.; Burnbrae, Holderness Road, Hull. (1924.)
- WILLFORD, HENRY; Sans Souci, Havenstreet, Ryde, Isle of Wight. (Nov., 1907.)
- WILLIAMS, SIDNEY, F.Z.S.; Oakleigh, 110 Riverway, Palmer's Green, London, N. 13. (Oct., 1910.)
- WILLIAMSON, T. F. M.; 2027 Hyde Street, San Francisco, California, U.S.A. (Aug., 1917.)
- WILSON, AND., F.Z.S.; 233 Argyle Street, Glasgow. (April, 1927.)
- WILSON, Dr. MAURICE A.; Walton Lodge, Pannal, Harrogate. (Oct., 1905.)
- WINTER, DWIGHT; Center and Negley Avenue, Pittsburgh, Pa., U.S.A. (1922.)
- WINTON, Dr. R. M.; Citrus Exchange Building, Tampa, Florida, U.S.A. (July, 1928.)
- WOOD, ALEXANDER R.; 5100 Live Oak Street, Dallas, Texas, U.S.A. (Jan., 1928.)
- WOOD, Dr. CASEY, F.Z.S.; McGill University Library, Montreal, Canada. (Sept., 1922.)
- WOOD, Mrs. MURIEL; 8 Lambolle Road, N.W. 3. (July, 1927.)
- WOOD, W. STUART, B.A., B.Dent.Sc.; 1 Maison Dieu Road, Dover. (Oct., 1927.)
- WOODWARD, KENNETH M.; Chappaqua, New York, U.S.A. (March, 1915.)
- WORKMAN, WILLIAM HUGHES, F.Z.S., M.B.O.U.; Lismore, Windsor Avenue, Belfast. (May, 1903.)
- WORMALD, HUGH, F.Z.S.; Heathfield, East Dereham, Norfolk. (Dec., 1904.)
- ZOOLOGICAL SOCIETY OF PHILADELPHIA; 34th Street, and Girard Avenue, Philadelphia, Penn., U.S.A. (Jan., 1920.)
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THE AVICULTURAL SOCIETY OF VICTORIA

LIST OF AFFILIATED MEMBERS

- BAIN, J. A. ; 84 Cameron Street, Launceston, Tasmania.
BUTLER, A. R. ; Hopetoun Road, Toorak, S.E.2, Melbourne.
CUMMING, W. ; 65 William Street, Melbourne, C.1.
DAVIES, Dr. F. L. ; High Street, Malvern, S.E.3, Melbourne.
JACQUES, ALAN ; Balwyn Road, Balwyn, E.8, Melbourne.
LANGDON, W. F. ; Hopetoun Road, Toorak, S.E.2, Melbourne.
LUXTON, T. ; 349 Glenferrie Road, Malvern, S.E.4, Melbourne.
PLEASANCE, N. ; Hopetoun Road, Toorak, S.E.2, Melbourne.
STOBIE, GRAEME ; 405 Collins Street, Melbourne, C.1.
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Rules of the Avicultural Society

As amended, 6th November, 1924

1.—The name of the Society shall be THE AVICULTURAL SOCIETY, and its object shall be the study of Foreign and British Birds in freedom and in captivity. Poultry, Pigeons, and Canaries shall be outside the scope of the Society. The year of the Society, with that of each volume of the Society's Magazine, which shall be known as *The Avicultural Magazine*, shall commence with the month of January and end on the 31st of December following.

2.—The Avicultural Society shall consist of Ordinary and Honorary Members, and the latter shall be restricted in number to six, and be elected by the Council.

3.—The Officers of the Society shall be elected, annually if necessary, by members of the Council in the manner hereinafter provided, and shall consist of a President, one or more Vice-Presidents, a Secretary, an Editor, a Treasurer, an Auditor, a Scrutineer, and a Council of eighteen members. The Secretary, Editor, and Treasurer shall be *ex officio* Members of the Council.

4.—New Members shall be proposed in writing, and the name and address of every person thus proposed, with the name of the Member proposing him, shall be published in the next issue of the Magazine. Unless the candidate shall, within two weeks after the publication of his name in the Magazine, be objected to by at least two Members, he shall be deemed to be duly elected. If five members shall lodge with the Secretary objections to any candidate he shall not be elected, but the signatures to the signed objections must be verified by the Scrutineer. If two or more Members (but less than five) shall object to any candidate, the Secretary shall announce in the next number of the Magazine that such objections have been lodged (but shall not disclose the names of the objectors), and shall request the Members to vote upon the question of the election of such candidate. Members shall record their votes in sealed letters addressed to the Scrutineer, and a candidate shall not be elected unless two-thirds of the votes recorded be in his favour; nor shall a candidate be elected if five or more votes be recorded against his election.

5.—Each Member shall pay an annual subscription of £1, to be due and payable in advance on the 1st of January in each year. New Members shall pay, in addition, an entrance fee of 10s. 0d.; and, on payment of their entrance fee and subscription, they shall be entitled to receive all the numbers of the Society's Magazine for the current year.

6.—Members intending to resign their membership at the end of the current year of the Society are expected to give notice to the Secretary before the 1st of December, so that their names may not be included in the "List of Members", which shall be published annually in the January number of the Magazine.

7.—The Magazine of the Society shall be issued on or about the first day of every month, and forwarded, post free, to all the Members who shall have paid their subscriptions for the year; but no Magazine shall be sent or delivered to any Member until the annual subscription shall have reached the hands of the Business Secretary or the Publishers. Members whose subscriptions shall not have been paid as above by the first day in November in any year shall cease to be Members of the Society, and shall not be re-admitted until a fresh entrance fee, as well as the annual subscription, shall have been paid.

8.—The Secretary, Editor, and Treasurer shall be elected for a term of five years, and, should a vacancy occur, it may be temporarily filled up by the Executive Committee (see Rule 10). At the expiration of the term of five years in every case it shall be competent for the Council to nominate the same officer, or another Member, for a further time of five years, unless a second candidate be proposed by not less than twenty-five Members of at least two years' standing, as set forth below.

In the November number of the Magazine preceding the retirement from office of the Secretary, Editor, or Treasurer, the Council shall publish the names of those members whom they have nominated to fill the vacancies thus created; and these members shall be deemed duly elected unless another candidate or candidates be proposed by not less than fifteen Members of at least two years' standing. Such proposal, duly seconded and containing the written consent of the nominee to serve, if elected, in the capacity for which he is proposed, must reach the Secretary on or before the 15th of November.

The Council shall also publish yearly in the November number of the Magazine the names of those members nominated by them for the posts of Auditor and Scrutineer respectively.

9.—The Members of the Council shall retire by rotation, two at the end of each year of the Society (unless a vacancy or vacancies shall occur otherwise) and two other Members of the Society shall be recommended by the Council to take the place of those retiring. The names of the two Members recommended shall be printed in the November number of *The Avicultural Magazine*. Should the Council's selection be objected to by fifteen or more Members, these shall have power to put forward two other candidates, whose names, together with the signatures of no less than fifteen Members proposing them, must reach the Hon. Secretary by the 15th of November. The names of the four candidates will then be printed on a voting paper and sent to each Member with the December number of the Magazine, and the result of the voting published in the January

issue. Should no alternative candidates be put forward, in the manner and by the date above specified, the two candidates recommended by the Council shall be deemed to have been duly elected. In the event of an equality of votes the President shall have a casting vote.

If any Member of the Council does not attend a meeting for two years in succession the Council shall have power to elect another member in his place.

10.—Immediately after the election of the Council that body shall proceed to elect three from its Members (*ex officio* Members not being eligible). These three, together with the Secretary, Treasurer, and Editor, shall form a Committee known as the Executive Committee. Members of the Council shall be asked every year (whether there has been an election of that body or not) if they wish to stand for the Executive, and in any year when the number of candidates exceeds three there shall be an election of the Executive.

The duties of the Executive Committee shall be as follows :—

- (i) To sanction all payments to be made on behalf of the Society.
- (ii) In the event of the resignation of any of the officers during the Society's year, to fill temporarily the vacancy until the end of the year. In the case of the office being one which is held for more than one year (e.g. Secretary, Editor, or Treasurer) the appointment shall be confirmed by the Council at its next meeting.
- (iii) To act for the Council in the decision of any other matter that may arise in connexion with the business of the Society.

The decision of any matter by the Executive to be settled by a simple majority (five to form a quorum). In the event of a tie on any question, such question shall be forthwith submitted by letter to the Council for their decision.

The Executive shall not have power

- (i) To add to or alter the Rules ;
- (ii) To expel any Member ;
- (iii) To re-elect the Secretary, Editor, or Treasurer for a second term of office.

It shall not be lawful for the Treasurer to pay any account unless such account be duly initialled by the Executive.

It shall be lawful for the Secretary or Editor to pledge the Society's credit for a sum not exceeding £15.

Should a Member wish any matter to be brought before the *Council* direct such matter should be sent to the Secretary with a letter stating that it is to be brought before the Council at their next meeting, otherwise communications will in the first place be brought before the Executive.

A decision of a majority of the Council, or a majority of the Executive endorsed by the Council, shall be final and conclusive in all matters.

11.—The Editor shall have an absolute discretion as to what matter shall be published in the Magazine (subject to the control of the Executive Committee). The Secretary and Editor shall respectively refer all matters of doubt and difficulty to the Executive Committee.

12.—The Council (but not a committee of the Council) shall have power to alter and add to the Rules, from time to time, in any manner they may think fit. Five to form a quorum at any meeting of the Council.

13.—The Council shall have power to expel any Member from the Society at any time without assigning any reason.

14.—Neither the office of Scrutineer nor that of Auditor shall be held for two consecutive years by the same person.

15.—The Scrutineer shall not reveal to any person how any Member shall have voted.

The Society's Medal

RULES

The Medal may be awarded at the discretion of the Committee to any Member who shall succeed in breeding, in the United Kingdom, any species of bird which shall not be known to have been previously bred in captivity in Great Britain or Ireland. Any Member wishing to obtain the Medal must send a detailed account for publication in the Magazine within about eight weeks from the date of hatching of the young, and furnish such evidence of the facts as the Executive Committee may require. The Medal will be awarded only in cases where the young shall live to be old enough to feed themselves, and to be wholly independent of their parents. No medal can be given for the breeding of hybrids, or of local races or sub-species of species that have already been bred.

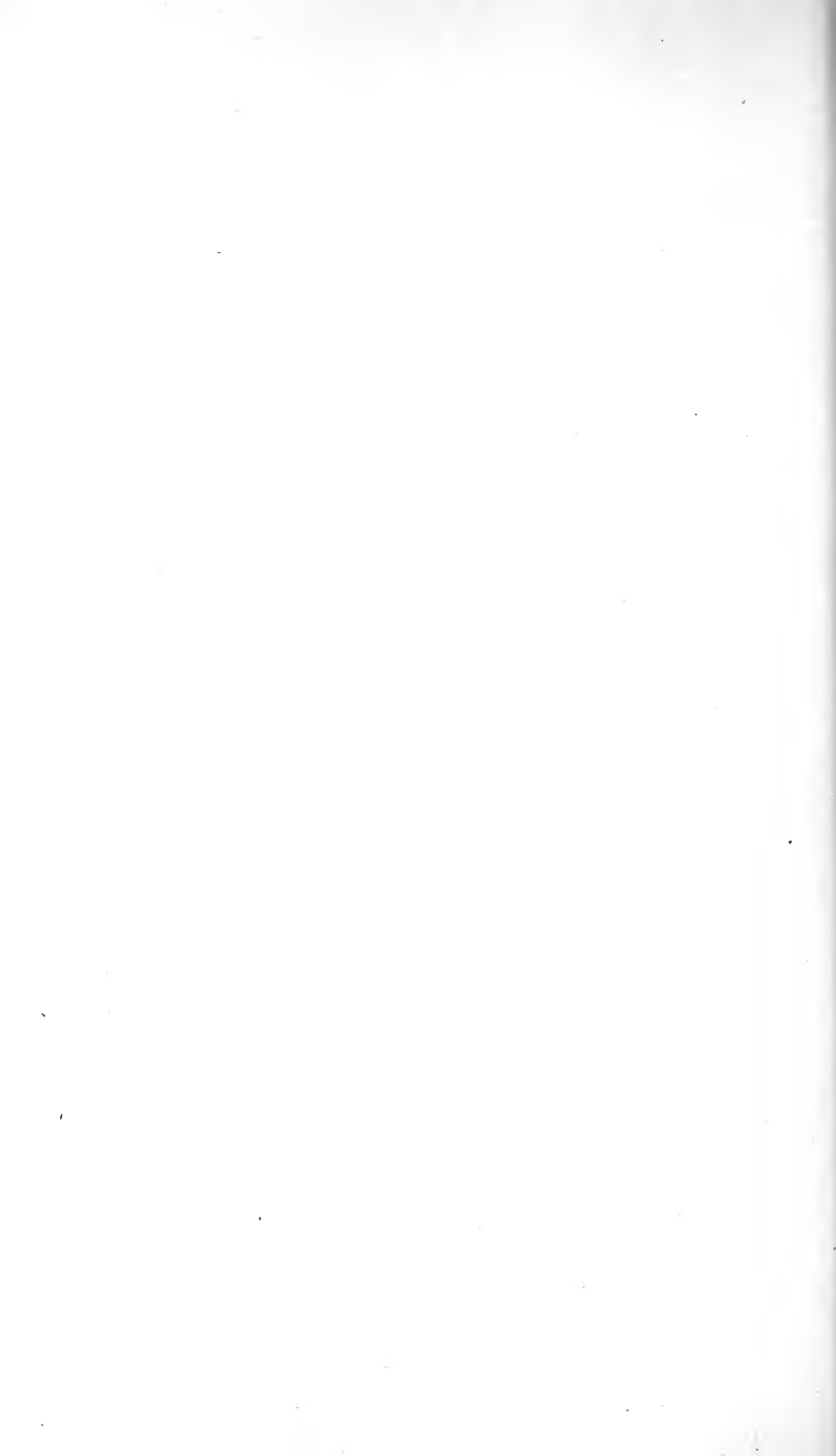
The account of the breeding must be reasonably full so as to afford instruction to our Members, and must appear in the *AVICULTURAL MAGAZINE* before it is published or notified elsewhere. It should describe the plumage of the young, and *be of value as a permanent record of the nesting and general habits of the species*. These points will have great weight when the question of awarding the Medal is under consideration.

In every case the decision of the Committee shall be final.

The Medal will be forwarded to each Member as soon after it shall have been awarded as possible.

The Medal is struck in bronze (but the Committee reserve the right to issue it in *silver* in very special cases) and measures $2\frac{1}{2}$ inches in diameter. It bears on the obverse a representation of two birds with a nest containing eggs, and the words "The Avicultural Society—founded 1894". On the reverse is the following inscription: "Awarded to [*name of recipient*] for rearing the young of [*name of species*], a species not previously bred in captivity in the United Kingdom."

The Council may grant a special medal to any member who shall succeed in breeding any species of bird that has not previously been bred in captivity in Europe.



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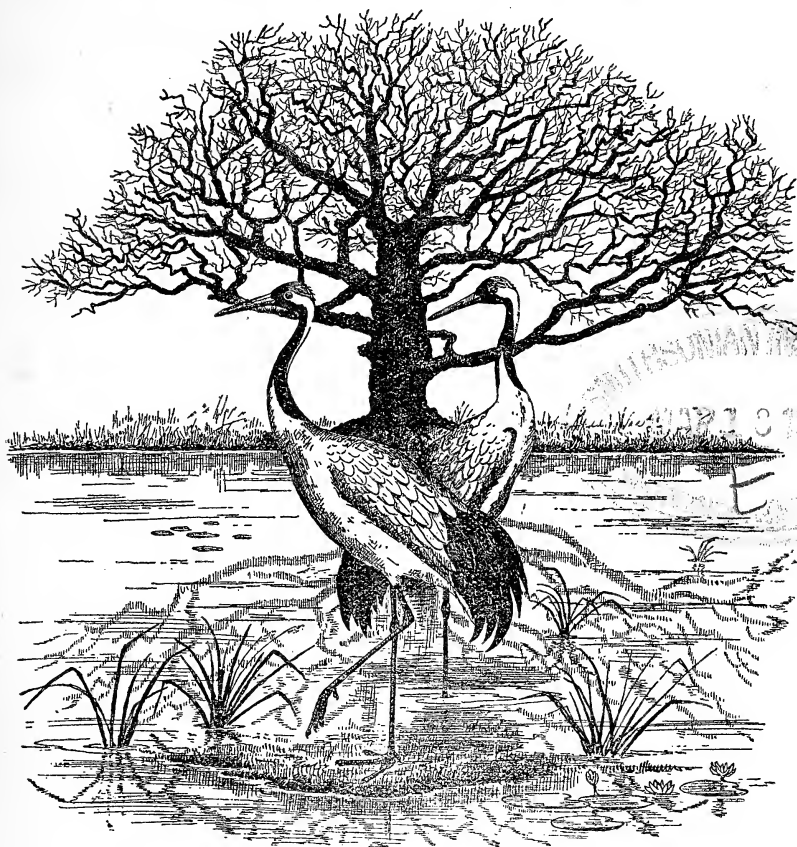
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THE Avicultural Magazine



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THE AVICULTURAL SOCIETY.

FOUNDED 1894

NOTICE TO MEMBERS

The Subscription to the Avicultural Society is £1 per annum, due on the 1st of January in each year, and is payable in advance. The entrance fee is 10/0. The *Avicultural Magazine* is sent free to members monthly. Members joining at any time during the year are entitled to the back numbers for the current year, on the payment of entrance fee and subscription.

ALL SUBSCRIPTIONS SHOULD BE SENT TO THE HONORARY SECRETARY AND TREASURER, MISS KNOBEL, 32 Tavistock Square, London, W.C.1.

All Queries respecting Birds (except post-mortem cases) and all other correspondence should be sent to the Hon. Secretary, at the above address. Any change of address should be notified to her.

POST-MORTEM EXAMINATIONS.

Rule 1.—A short account of the illness should accompany the specimen. All birds to be sent as fresh as possible to Mr. C. H. HICKS, The Prosectorium, The Zoological Society of London, Regent's Park, London, N. W. 8.

Rule 2.—A stamped addressed envelope must be enclosed with the bird.

Rule 3.—No body or skin of any bird will be returned under any circumstances whatever.

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From 1st January, 1929, to 31st December, 1929.

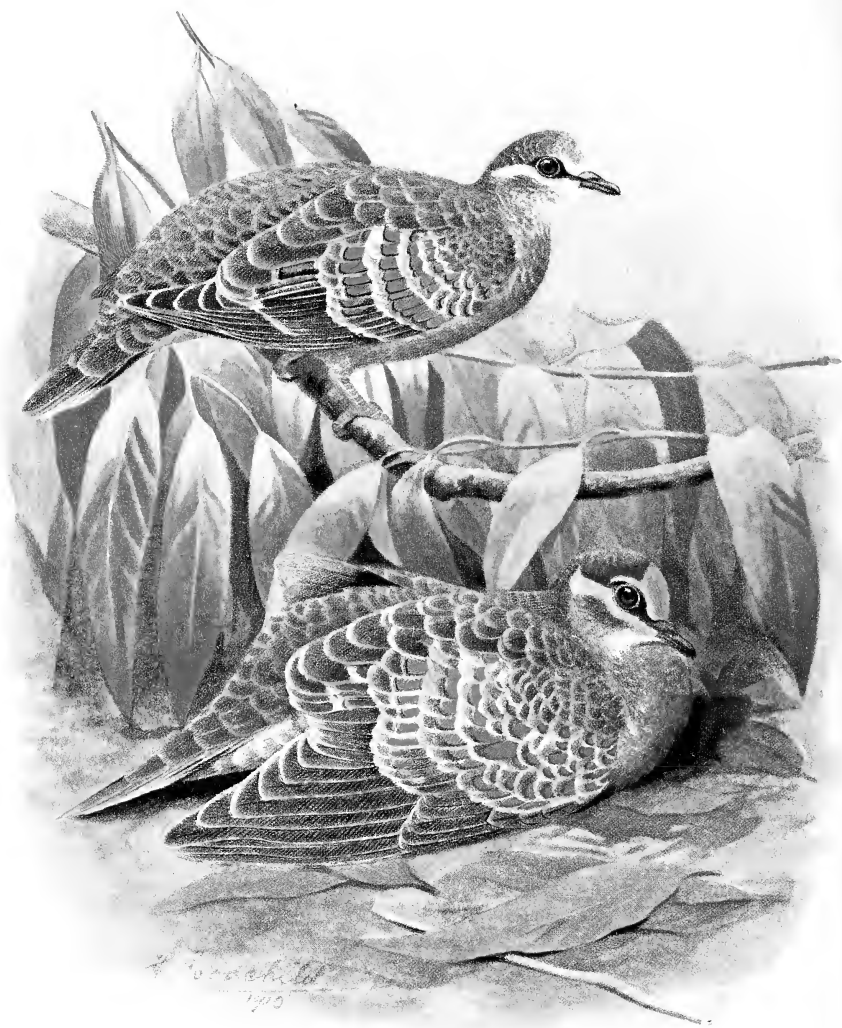
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THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF
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FOR THE STUDY OF
FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

Fifth Series.—Vol. VII.—No. 1.—*All rights reserved.*

JANUARY, 1929.

THE BRONZE-WINGED PIGEON

By T. H. NEWMAN

The Bronze-winged Pigeons are all most attractive and desirable aviary birds, their wonderful jewelled-like wings reflecting the light in ever-changing colours, and, as they are mostly birds of fair size and much given to spending their time on the ground, they catch the eye of those who are not generally interested in birds. Of all the species none is finer than the so-called Common Bronze-wing (*Phaps chalcoptera*). If it were a very scarce species I believe it would be as eagerly sought after and valued as, say, a Bird of Paradise. Not only are they most beautiful, but they are gentle (very amiable for a Pigeon), good breeders, and very hardy and easy to cater for. Perhaps the fact that they have been easy to obtain in the past has made us not value them as we should; but now that the Australian Government has forbidden the exportation of the native birds, unless by special permit, we ought to most carefully preserve our stock and try to rear as many young birds as possible; and I would suggest that young birds should be exchanged so as to introduce fresh blood, and so carry on for years with perhaps the help of an occasional imported bird. The wonderful results in colour-breeding obtained by intensive culture in that other

Australian bird, the Budgerigar, show what can be done by careful selection ; so who knows what might result from starting with such a magnificent species as the Bronze-winged Pigeon ?

This bird used to be very common in the interior, but like many other species does not now seem to be met with in such numbers, though it is still probably the best known Pigeon in Australia, being found throughout the Continent and also in Tasmania. It seeks its food on the ground, and in addition to seeds and grain a certain amount of insect food seems to be taken. I have seen them eagerly devouring earth-worms in captivity. The best account of its wild habits has been given us by A. J. Campbell in his *Nests and Eggs of Australian Birds*, where he tells us that the manner of coming to drink of this Pigeon differs from other species, as the birds in the evening (and a few in the morning) fly to within fifty yards of water and then walk to the edge, drink and walk away a few yards before flying away. They would also nest in company, a story being told of a dozen pairs suddenly appearing and establishing themselves on a low-bushed, scrubby ridge, where they were protected and grew comparatively tame ; they nested and hatched their young, but just as they were getting on nicely a flock of Crows appeared and killed and devoured every nestling. A great variety of situations have been made use of by this Pigeon, the nest being sometimes as high as 25 feet from the ground, and at other times even placed on the ground ; but usually the slight platform of twigs is placed in a fork of a horizontal limb of a low tree or on a bushy branch at no great distance from the ground, while a stump is not infrequently made use of and a hollow spout of a gum-tree may be used. The natural nesting season lasts from about August to the end of the year. When first imported they are apt to be rather wild, but they soon settle down and adapt themselves to our seasons. Several nests may be made during the year, and Bronze-wings generally prove to be good parents, looking well after their young and not neglecting them when they leave the nest, as so many Doves and Pigeons often do. They do well on the usual larger seeds and grain supplied to Pigeons, and are fond of cut-up peanuts, and will eat some of the soft fruits such as the wine-berry. Pigeons as a family are easy birds to hybridize, and the Common Bronze-winged Pigeon will readily mate with the allied Brush Bronze-wing. In 1912

and 1913 I reared about half a dozen fine birds from a cock Brush mated with a hen Common. The hybrids were very beautiful; I had birds of both sexes, and shortly afterwards young were reared in the London Zoological Gardens from a cock Common mated to a hen Brush Bronze-wing. I had hoped to get one of these birds to compare with and mate with one of mine, but the war upset this and other plans. The coloured plate, a study of the living birds and one of the late Mr. H. Goodchild's most beautiful drawings, makes a description unnecessary. Individuals vary much in the colour of the metallic spots on the wings, one hen bird that I had had them bronzy-green and in another of the same sex they were fiery-red. The young are dark brown with lighter edges to the feathers, the light stripe above, and particularly below and behind the eye, is very distinct; and the young cock can be distinguished whilst still in the nest by his buff forehead. The metallic spots appear when the bird moults. The Common Bronze-wing has been liberated at Woburn Abbey and ten were turned out in the London Zoological Gardens as an experiment when some Crested Bronze-wings were also allowed their liberty, but the birds soon disappeared from this latter locality.

BREEDING OF THE ABYSSINIAN HELMETED GUINEAFOWL, THE VULTURINE GUINEAFOWL, AND OTHER NOTES

By G. H. GURNEY, F.E.S.

During the past summer a number of interesting species nested in the aviaries here, but in many cases the young were not reared. Perhaps the most noteworthy event was the breeding of the fine Abyssinian form of the Helmeted Guinea-fowl, *Numida ptilorhyncha*, which differs very considerably from the two species found further south in Kenya Colony, viz. *Numida reichenowi* and *Numida meleagris major*. Eleven eggs were laid about the middle of July, and all hatched. Eight young birds have been fully reared.

The eggs closely resembled those of the domestic Guinea-fowl, but are smaller, paler in colour, with less rufous spotting, and the shell is

not so hard. The chicks are most beautiful little objects, covered with rich red brown fluff, the head conspicuously striped with dark brown and white; this striping remains till the birds are nearly adult, and even after they have moulted once, and have their full spotted plumage, they still retain this marked characteristic. They grew very quickly after the first week, but I found required an enormous amount of exercise, roaming over a large extent of ground. They were reared on Pheasant's food and plenty of ants' eggs. My pair of Vulturine Guinea-fowls laid three eggs only, in a manger, the very slight nest being made of hay. Two eggs hatched, and the young have been reared; they closely resembled *N. ptilorhyncha* till they were six weeks or nearly two months old, when the characteristic Vulturine feathers began to appear, the long hackles on the neck, the patch of self-coloured breast feathers, and the longer, more elongated shape of the body began to be noticeable. The Vulturine Guinea-fowl has, I believe, been bred more than once in captivity, but I am not sure if the other species ever has.

A pair of Razor-billed Curassows nested high up on the lid of a hamper, in the back of a shed. These birds, like the Guinea-fowls, have practically complete liberty, and constantly fly across into an adjacent wood, always returning, however, to be fed; one would rather have expected them to have nested in one of the trees in the wood, which has much thick undergrowth and appears very suitable. Two large white eggs were laid, very rough in texture. The hen alone sat steadily for six weeks, only coming off to feed, and after that, of her own accord, gave it up as a bad job; both eggs, on examination, proved to be infertile. These Curassows are almost as tame as Trumpeters; when noticed or spoken to, they have a curious habit of shaking their heads more or less continuously; at first I thought they must have something the matter with them, but it appears to be a natural habit, and some Guans which I have do the same thing, though not to such an extent.

Occipital Tree Pies nested and laid two, or possibly three eggs, but ate them after sitting a week. They were probably not kept sufficiently quiet. My pair of San Blas Jays nested no less than three times during the summer, always in the same place, a large box bush in the flight of their aviary. Four, three, and three eggs were respectively

laid, each clutch being richer in colour and more spotted than the last; the eggs of the first clutch were white with a faint pink tinge, increasing in depth at the larger end, the brown spots were pale and very inconspicuous; in the second clutch of three eggs, the spots were larger and more deeply coloured, while in the last clutch the eggs were of a beautiful pinky tinge all over, well covered with different sized spots of a rich purple-brown. All these clutches hatched, but in every case the young were eaten by the old birds: the first lot when they were only a few days old, in the second brood one nestling was eaten on the second or third day, but the remaining two survived till they were eight days old, when they too suffered the same fate; the third lot of young were almost fledged, well covered with feathers, and we had dared to begin to hope that they would escape the fate of their brothers and sisters, but one morning, when the attendant first visited them, he found one being actually devoured by its parent, and no signs of the others. The old birds had been given as many mice and Sparrows as they could eat, and were most attentive parents, till the fatal fascination of murdering their offspring was too much for them. They were the sole occupants of their aviary, save for a pair of African Plovers, and I do not think they paid any attention to these, as they had been there a long while and were quite used to each other.

Buff-backed Herons made two nests on hamper lids in the Waders' aviary, but in both cases they were disturbed by Ibises; another year I must try and remove the latter, as I fancy the Herons would have laid, and it is not often that members of this family are bred. Rheas made no attempt at laying this year, the first summer I have had no young Rheas since I first kept them, twelve or fifteen years ago, though not the same individuals.

A few Ducks were bred, mainly Carolinas; I never quite understand why more do not nest here, as although the piece of water is small, and possibly overcrowded with Ducks, they can wander through shrubs and bushes a very long way, and have plenty of scope for breeding.

Royal Starlings carried quantities of nesting materials into a hollow log, but got no further; in one of my pair, the entire plumage, which is normally yellow, has become creamy white colour; I have never seen

another example of this species at all like it. Australian Crested Doves bred freely and Diamond Doves reared several young.

Two Nyasaland Lovebirds were reared, and a good many Bengalese Finches. Spotted Francolins nested twice; the first eggs were infertile; of the second clutch, three were hatched but died after two or three days, I think from cold and damp weather. My pair of Plumed Jays, *Calocitta formosa*, an account of which has appeared in the Magazine, disappointed me by showing no signs of wanting to go to nest. Two Ducks, my old porcupine, and a cow killed themselves by eating green acorns.

BREEDING NOTES FROM THE LILFORD AVIARIES, 1928

By A. F. MOODY

By permission of the Lady Lilford and as of possible interest to aviculturists, I give a few particulars of the breeding season of 1928 amongst the birds at Lilford. Firstly, although about fifty aviaries and enclosures are tenanted by something like 300 birds of perhaps 100 species (chiefly the larger), many in fact the greater number, owing to the retention of old favourites and broken pairs, are non-breeders. Also the great number of visitors to the aviaries during the summer months is much against breeding and deprives the birds of that quiet so essential to success with many species.¹ Misfortunes too, common to aviculturists, are not unknown at Lilford. Our first of the nesting season, and rather an extraordinary one, occurred in March. A female Upland Goose which had been sitting steadily nearly a month under a lilac bush, being disturbed during the night by rats or other vermin, and in her efforts to protect the eggs or to defend herself, had jumped into the air and caught the shoulder of her unpinioned wing in a fork of the lilac. Suspended in the air, her toes just touching the ground, the

¹ By the kindness of the owner, on written application to the Secretary, Lilford Hall, Barnwell, Peterborough, permission is granted to visit the aviaries, etc., on any afternoon in the week except Sundays, during April, May, June, July, August, and September. On Wednesdays and Thursdays admission is free, on other days a charge of 6d. per head is made, which goes to the funds of the County Nursing Association.

eggs broken and scattered, the poor bird was found in the morning utterly exhausted and was only eventually nursed back to health and beauty by the greatest care and the subsequent removal of the twisted joint.

Another tragedy in April was the early demise of two little White-necked Crane chicks, apparently from gapes. A minor one, a well-grown Horsfield's Pheasant chick (the only one hatched) being decapitated by a pair of breeding Conures. A fourth, the refusal of a pair of Spree Starlings to further feed their young; whilst amongst other disappointments may be mentioned the failure of two clutches of North American Wild Turkeys' eggs to hatch, the complete disappearance of several newly hatched Gurganey down a mouse run, burrowed beneath the sitting hen, also two full broods of Lesser Scaup reared turning out to be worthless hybrids between a female of that species and a male Common Pochard. Amongst our very few successes may be recorded the rearing of a later clutch of two White-naped Cranes (*Grus leucauchen*). The only departure from our usual procedure in this instance (they rear here annually) being that, as an experiment, one egg was taken from the parents a few hours before hatching and placed under a domestic fowl. A chick duly appeared and much puzzled its foster mother, a steady Rhode Island Red, who looked at it critically and I suppose thought "What next?" The only difficulty in the rearing of this bird was that for the first day or two it expected food from the bill and persisted in pecking at the red comb of the hen. This was overcome by offering food (fragments of meat, etc.) from the fingers, when it soon learned to pick up, grew rapidly, and until grown kept considerably in advance of its brother or sister chick reared by the parents. As of possible interest I may add that the first white neck feather of this bird appeared on the eighty-fifth day, and that at the time of writing, 16th November, the lower half of the white neck strip of both birds is complete and the general plumage a mixture of steel and fawn. This sturdy little youngster is very tame, rather given to artificial behaviour, and, in the writer's opinion, just lacks that charm and interest attached to the natural bird.

Other birds nesting were a pair of European Eagle Owls, a Common Redshank, which sat steadily upon infertile eggs, Gold, Amherst

Pheasants, etc., laid early and got most of their eggs frozen, as were also the earlier clutches of Peacock Pheasants and Red Junglefowl. An unattached female Monaul, a Red-throated Guan, Cornish and Alpine Choughs produced eggs, as did also two female Hutchin's Geese.

A pair of Ring-necked Parrakeets, confined in an aviary, reared their annual quota of three young, as did others at liberty in the woods.

As in preceding years, two young Jenday's Conures were reared from a pair which started in 1926. One young bird of that year, bred at liberty, still stays about with the Ring-necks, comes up to feed twice daily, and can readily be distinguished at a considerable distance when flying by its more rapid wing beats or Cuckoo-like flight.

Of Waterfowl 38 species of Duck (some not established) are at present living in the collection. Of these about 20 species nested, resulting in 69 young being hatched and 67 reared. These include American, Common and Chiloe Wigeon, Falcated Duck, Pochard, Tufted, American Red-head, Indian and Japanese Spotbill, Rosy-bill, Shoveller, Lesser Scaup (hybrids), three Mallards, and a full brood of eight Canvas Backs. Of the latter rather uncommon species in confinement, five eggs were laid in a nest and three dropped. Incubation under a fowl lasted twenty-six days, the young proving quite as easy to rear as the young of its near relative, the Common Pochard.

SOME NOTES ON THE GOLDEN-BACKED HANGING PARROT

By the MARQUESS OF TAVISTOCK

Late last spring, through the kindness of a fellow-member, I was given the opportunity of acquiring a pair of this rare and lovely little Parrot which I had coveted since seeing a single male at the Zoological Gardens. The Golden-backed is large, as Hanging Parrots go, being about the size of a Peach-faced Lovebird. The cock is a rich green, slightly paler on the breast. The rump and forehead are red and there is a large patch of orange-red of an unusual and very lovely shade on the throat. Down the back of the head and neck, from the fore-part of

the crown to the shoulders, runs a strip of golden yellow merging into golden brown in the centre of the mantle. The bill is orange-red and very long, slender and delicately curved, and the feet are reddish. The hen lacks the orange-red throat patch, her throat having a bluish tinge, and the golden strip on the head and neck is duller and more ill-defined. As the birds were in good condition on arrival and the weather warm, I turned them straight into one of my large movable aviaries, where, up to the present, they have done well, a good-sized petrol heater being employed, since the cold weather began, to raise the temperature of the shelter to a comfortable warmth.

The birds have been fed mainly on Sunbird mixture—Horlick's milk, honey, and Mellin's food, and are extremely fond of a good dessert apple, eating a considerable quantity. Since moulting they have come into lovely plumage, and I succeeded in winning a first prize with them at the recent Paignton show.

For a time I kept a Superb Tanager with the Hanging Parrots, but in the end I had to remove him as he started to bully them when he got into good condition. It would appear, therefore, that the Golden-backed Hanging Parrot resembles the Blue-crowned in being timid and inoffensive where passerine birds are concerned. The cock Golden-back spends a fair amount of time in the open flight, though he makes good use of the shelter as well. He possesses quite a song—a low whispering and chittering with an occasional soft, sweet note interspersed, the performance being kept up for some time as in the case of a cock Budgerigar. His mate is more nervous or more warmth-loving and nowadays seldom leaves the shelter. She is rather a shrewish creature, refusing to tolerate her handsome partner near her, and if in any way cornered by a human hand, making a terrific lunge, accompanied by an explosive screeching hiss. One can well imagine that in snake-haunted lands such a means of defence would be very effective for a sitting bird. Golden-backed Hanging Parrots, like other members of the genus, are very subject to overgrown claws, and these need cutting at intervals when the birds show signs of getting hung up on the wire-netting. The Golden-backed Hanging Parrot is said to have hatched young at the Zoological Gardens many years ago, so, if my pair survive the winter, they may possibly breed.

[The Golden-backed Hanging Parrot or Parrakeet, *Loriculus chrysonotus*, inhabits the island of Cebu, in the Philippines. It is rarely imported, but some arrived in Mr. Goodfellow's collection referred to below.—ED.]

ARRIVAL OF RARE BIRDS FROM THE EAST

Mr. Walter Goodfellow recently returned from a collecting trip to the East on behalf of Mr. Spedan Lewis, and his collection contained a number of rarities. Perhaps the most valuable were three examples of Bulwer's Pheasant (*Lobiphasis bulweri*) from the mountain forests of Sarawak. The male is a remarkable bird with the head almost naked, bright blue in colour, and ornamented with three pairs of wattles. The neck and chest are dark crimson, the body black with steel-blue margins to the feathers, the tail being pure white.

The collection contained five examples of a very handsome White Grackle, which proves to be Rothschild's Grackle *Leucopsar rothschildi* from the island of Bali. It is pure white with a full crest, black primaries and end of tail. The skin surrounding the eyes is bare of feathers and blue in colour. The species was described by Herr Stresemann so recently as in 1912, and it was figured in the *Novitates Zoologicae* (xix, 1912-13).

Mr. Spedan Lewis has presented to the Zoological Society several very rare birds from this collection, of which the following are new to the Zoo list: Helmeted Hornbill, *Rhinoplax vigil*; Javan Hornbill, *Buceros sylvestris*; Fire-tufted Barbet, *Psilopogon pyrolophus*; Crow-billed Barbet, *Chotorhea corvina*; Green Broadbill, *Calyptomena viridis*; Rufous-vented Babbler, *Malacocincla rufiventris*. The Hornbills are quite young, but will be splendid birds when adult. The Fire-tufted Barbet is a most handsome and attractive bird which Mr. Delacour tells me has been already imported into France, though I believe this is the first to be brought to England. It is green with grey cheeks, a yellow, followed by a black band on the chest; a tuft of fiery-red tipped bristles above the bill, which is of a greenish colour with a blackish band across it. The forehead is black, followed by a greyish patch, and the crown is reddish brown. This bird occurs in the mountain ranges of

the Malay Peninsula and Sumatra, and is figured in H. C. Robinson's recently published *Birds of the Malay Peninsula*.

The Green Broadbill is a very striking bird of an intensely vivid green with black markings. It feeds entirely upon fruit and occurs in the Malay Peninsula and Borneo.

D. S-S.

SEA BIRDS

By J. DELACOUR

In this article I propose to include those sea birds having webbed feet which feed on fish and garbage cast up on the shore or floating on the waves. They comprise several families with very diverse characteristics : Skuas, Gulls, Petrels, and Albatrosses.

Skuas

The Skuas or Robber-Gulls (*Stercorariidæ*) are large brown Gulls which feed mostly by robbing other Gulls of fish which they have already swallowed and which they oblige them to disgorge ; they also devour the eggs and young of other birds. They are very dangerous in confinement, attacking and killing birds of their own size. In addition to this they have nothing to recommend them to aviculturists and are hardly ever met with except in zoological gardens, where the following species have been shown : *Stercorarius skua*, *S. chilensis*, *S. antarctica*, *S. pomatorhinus*, *S. crepidatus*, *S. parasiticus*, *S. lonnbergi*. They are long-lived and thrive on a diet of meat and fish.

Gulls

Gulls are well known to everybody and are common on many coasts and often far inland, except in Polynesia. Nearly all are white, occasionally faintly rose-coloured, with dark or pale grey mantles ; some have black heads and others have grey under-parts as well.

Gulls feed on fish and all kinds of refuse thrown into the sea ; when on land they eat worms, insects, and small animals, very much after the fashion of Crows. The large species consume quantities of the eggs, young, and even adults, of weaker birds.

They are hardy in confinement, intelligent, tame, and amusing. As

a rule they are pinioned and allowed to run loose in the garden, where they find a variety of food which should be supplemented by bread, scraps of meat, and fish. But so their graceful flight cannot be enjoyed and only in zoological gardens are the aviaries sufficiently vast to allow them to sport and fly at their ease. They breed readily whenever conditions are favourable. Of course it will readily be understood that they must not be kept along with weaker birds, to whom they would be exceedingly dangerous.

Nearly all species of the genus *Larus*, about forty-five, have been imported or kept in confinement, so that it is unnecessary to enumerate them, particularly as they all have very much the same colouring, the chief difference being size and the colour of the mantle, which varies from white to dark grey, almost black; their heads, which may or may not wear a black hood, and the colour of their legs or bill. A great many have bred and hybrids even have been known. Their near relations, *Gabianus*, *Leucophæus*, *Pagophila*, and *Rissa*, genera which consist of only one species each, have likewise figured in collections.

Terns

Terns are, generally speaking, of much the same colour as Gulls, chiefly grey and white; they are smaller and their bills are long and straight, their legs very short, wings particularly long, and their tails forked. For these reasons they are sometimes called Sea Swallows. They are poor runners, but fly well and are most at home in the air. They can swim, but not long distances.

They feed on small fish swimming near the surface of the water, and which they catch by diving, and insects which they catch on the wing. Terns are found all over the world, most are migratory and frequent both salt and fresh water. Terns can be kept in confinement; if taken young they can be tamed sufficiently to be allowed their freedom; they fly round and return to their owner. They are not suitable for keeping in aviaries except by people who are specially interested in this kind of bird, as their beauty lies in their flight. They should be given an insectivorous mixture, fish, and insects.

Nearly all the indigenous species have been tried (*Hydrochelidon nigra*, *Gelochelidon anglica*, *Hydroprogne caspia*, *Sterna fluviatilis*,



Photo D, Seth-Smith

SILVER GULL
Larus nova-hollandiae

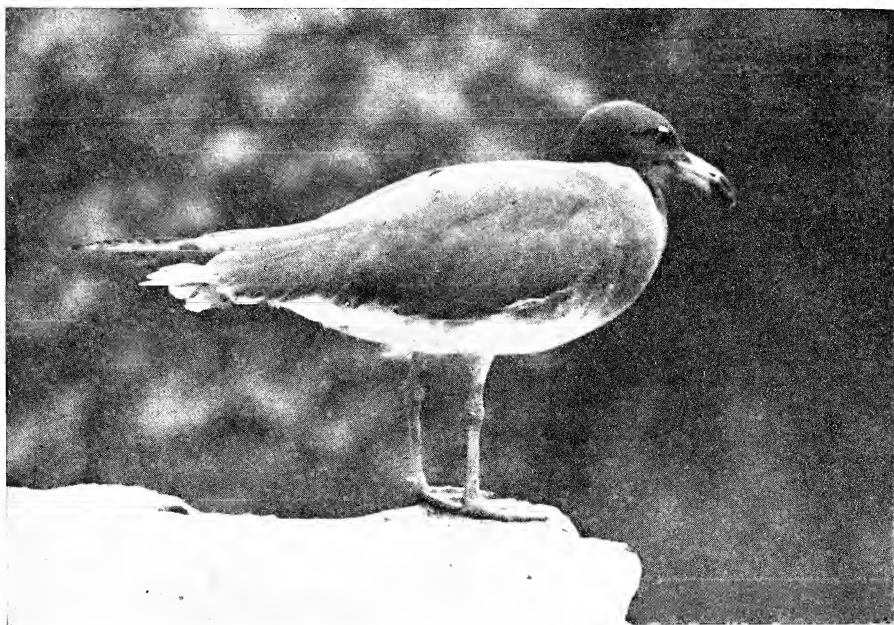


Photo D, Seth-Smith

HEMPRICH'S GULL
Larus hemprichi



S. macrura, *S. cantiaca*, *S. minuta*, etc.) and the following have also been imported : *Phaëtus magnirostris* from South America, *Nænia inca* from Chile ; *Anous stolidus* from tropical seas, and probably several others.

Albatrosses

The Albatrosses are large birds inhabiting tropical seas, particularly round Australia, having very long narrow wings and extraordinary powers of flight. They have very strong hooked beaks and their nostrils are cased in a kind of sheath. They are found on the high seas and make long voyages. Their food consists of floating molluscs and any kind of garbage. Their gait on land is faltering and grotesque.

Although several species (*Diomedea exulans*, *D. melanophrys*, *D. irrorata*, etc.) have been shown in zoological gardens, they are not suitable subjects. They are birds which should be left to fly at liberty.

Petrels

Petrels (*Procellariidæ*) have beaks like miniature Albatrosses, and they also are birds of the open sea. The large species resemble Gulls, but the smaller are grey or brown. They spend all their time flying and are not suitable to be kept in confinement. Their food consists of all kinds of small marine creatures and a kind of oil is found in their stomachs. Attempts have been made to keep most of the indigenous species alive but without success, for they are in no wise suitable for aviary life.

DIVING BIRDS

By J. DELACOUR

The different birds mentioned under this heading have little in common save that they all dive for their food and are particularly adapted to this mode of living.

They have short wings (in some species these have assumed the function of fins), short strong legs, and webbed feet placed very far back, which causes the birds, when on land, to assume an upright attitude or to drag themselves along the ground. Nearly all have seasonal changes of plumage.

Auks

Auks (*Alcidæ*) inhabit the Northern Hemisphere; they can all fly although their wings are short, and they have webbed feet. An extinct species, the Great Auk (*Alca impennis*), had such small wings that it was unable to fly. Auks are all sea birds and nest gregariously on rocky islands. They feed on small fish, worms, and molluscs. They are frequently exhibited in zoological gardens, but do not live long and are not really suited to confinement. All the European species, Razor-bill, Guillemots Little Auk, and Puffin, have been exhibited and have lived for a time in London, but they are difficult subjects. Where possible they should be provided with salt water.

Penguins

Although superficially resembling the Auks the Penguins are in reality very different. They take the place of Auks in the Antarctic, but are still better adapted to marine life; their wings have become fin-like and their feathers have assumed a scaly appearance. Their feet are webbed and very thick. They are gregarious. These birds thrive much better in confinement than the Auks, and their comical appearance, their boldness and absurd quarrels make them very amusing to watch; in fact, they rank among the greatest attractions of zoological gardens.

They are fed on fish but should sometimes be hand fed; it is a good thing to give a pinch of iodine daily to each bird, concealed in a fish head, unless they can be provided with sea water. Once acclimatized they are long lived and are very ready to breed, generally in little kennels or among stones. The late Mr. Astley tried putting some Penguins on his ponds which were already stocked with water fowl, but, although they proved quite harmless, the other birds were so terrified by the dashing way in which they swam and dived that he had to remove them.

THE CAPE OR BLACK-FOOTED PENGUIN (*Spheniscus demersus*), a black and white bird from South Africa, is by far the commonest in confinement and is easily bred. *S. humboldti* from Chile, *S. mendelius* from Galapagos, and *S. magellanicus* from South America (ranging from Chile to Brazil); *Endyptula minor* of Australia, *Megadyptes*

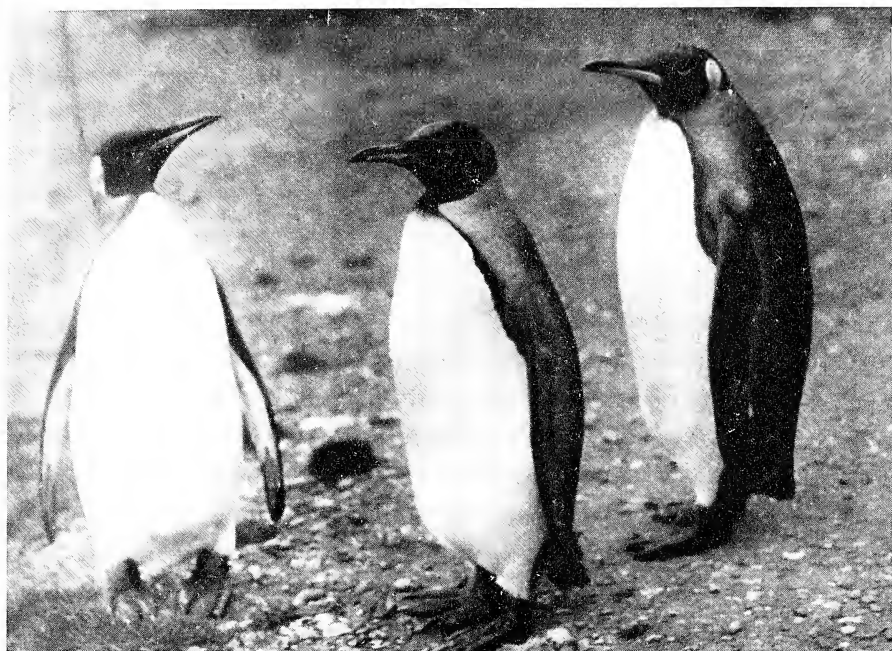


Photo D. Seth-Smith

KING PENGUIN
Aptenodytes patagonica

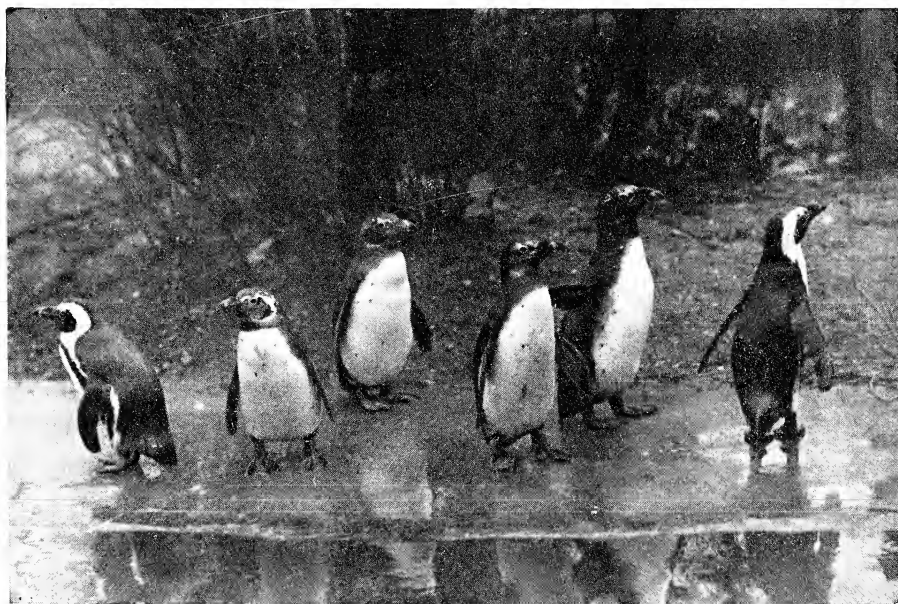


Photo D. Seth-Smith

CAPE PENGUINS Adults and young.

antipodum of New Zealand, and *Pygoscelis papua*, inhabiting the same region and the Falkland and Kerguelen Isles, have all been exhibited in zoological gardens.

THE ROCK-HOPPER PENGUINS (*Catarrhactes*) have tufts of yellow feathers at the sides of their heads. Three species out of four have been imported: *C. chrysocome* from the Falkland Isles, Kerguelen, Australia, etc., *C. pachyrhynchus* and *C. sclateri* from New Zealand.

THE KING PENGUIN (*Aptenodytes patagonica*) from islands to the south is one of the most remarkable members of the family. It is a large bird of strange appearance, with a slender bill, and plumage richly variegated with brown, blue-grey, black, white, and yellow. It has been bred several times in the Zoological Gardens of Edinburgh, and has figured several times in large public collections in spite of its rarity and costliness.

The still larger Emperor Penguin (*A. forsteri*) of the Antarctic has never been imported.

Divers

Divers (*Colymbus*) are large birds with wings which, though short, are capable of flight, straight, long pointed bills and webbed feet. Their summer plumage is very handsome, having white and sometimes russet markings on a bronzy black and grey ground. Out of the breeding season they live at sea but come to lakes and ponds for breeding purposes, and again during winter migration. They belong to the Arctic regions.

They swim and dive with amazing rapidity and feed on fish. In contrast to the Penguins, they are of solitary habits.

Their flight is heavy but swift; they can only drag themselves along the ground and cannot stand up.

Divers live fairly well in confinement under natural conditions, that is to say on a pond where fish are plentiful or where they can have access to a large tank and are fed on fresh fish.

The three species which visit the temperate parts of Europe in winter, namely the Great Northern, Black-throated, and Red-throated Divers, have all been kept in collections.

Grebes

Grebes (*Podiceps*) are nearly related to the Divers but are much smaller, have shorter beaks and curiously lobed feet. They often have tufted heads and brown plumage, but they change their dress according to the season.

They live only in fresh water and inhabit the temperate parts of both hemispheres, emigrating to warmer regions at the approach of winter.

They are purely water birds and one might say they are never seen on dry land; they fly heavily but with rapidity, swim and dive very swiftly. They feed on small fish, insects, and other small organisms which they take under water. They build floating nests among the water weeds.

Grebes can easily be kept in confinement on small ponds providing there is sufficient natural food. They may also be kept in aviaries if large tanks are provided and filled with small fishes and aquatic insects; they are harmless. The following species have been kept: the Chestnut Grebe (*P. ruficollis*), a very small species; the Black-necked Grebe (*C. nigricollis*) and the Eared Grebe (*C. auritus*), two closely related species, black, with brown abdomen, sides, and rump, and adorned on the head with two yellow tufts; the crested Grebe (*P. cristatus*), a large and handsome species with brown, black, and white plumage, and a head to which the long side feathers and double crest give a very distinct appearance; the Red-necked Grebe (*P. griseigena*), brown with russet neck and crested head black above, greyish white beneath. Finally, the Giant Grebe of Cayenne (*Æchmophorus major*) has been imported. It is larger than the Crested Grebe with very long beak and neck recalling the Divers, crestless, brown above and whitish below, and the front of the neck, breast, and sides are rust colour.

CORRESPONDENCE

A BUDGERIGAR TRAGEDY

SIRS,—I have bred a good number of Budgerigars (green and yellow) in an outdoor aviary during the past summer, the birds having done very well. About three weeks ago I separated the sexes, putting all the cocks in a large aviary cage, likewise the hens. All went well for three days, when on looking at them the next morning a most ghastly spectacle awaited me. Every cock bird (about ten) was terribly mutilated, three or four were dead, the rest were minus eyes, toes, even *beaks*, and the whole lot were a mass of congealed blood. Only one survived. The hens in another large cage were all perfectly sound. Is this not rather unusual? Have any of our members had a similar experience? My own opinion is that there must have been one young hen amongst the cock birds, and so caused the terrible fighting which had occurred. (It was not possible for anything to have got into the cage.) I hardly feel so enthusiastic over Budgerigars as I was before I witnessed this horrible sight!

EVELYN DENNIS.

[Is it quite certain that it was not a rat? We have known cases where rats have attacked from the outside of the cage, the frightened birds being seized as they clung on to the wires, and legs, wings, or beaks being bitten off.—ED.]

CUCKOOS AND SAW-FLY LARVÆ

SIR,—I can corroborate Captain Hamilton Scott's observations on Cuckoos feeding on Gooseberry Saw-fly larvæ. Some years ago I reared a young Cockoo by hand largely on these larvæ from our own and our neighbours' gardens. The bird took these eagerly, as well as those of the Buff-tip moth, which are usually avoided by insectivorous birds, and thrived on them. When it grew old enough I taught it to feed itself by putting it under gooseberry and currant bushes infested by the Saw-fly larvæ.

It was almost the tamest bird I ever reared, and its death brought on by a chill owing to neglect while I was away on a visit, was a great disappointment.

ETHEL F. CHAWNER.

CHANGE OF PLUMAGE IN SNOWY OWL

SIR,—The Snowy Owls at the Zoo to which I alluded in the AVICULTURAL MAGAZINE for 1927 (p. 200) have now all moulted again ; the largest, which is presumably a hen, having practically reproduced the heavily-barred plumage which all of them had when first received, thus bearing out the commonly-received idea that the female in this species takes longer to turn white than the male. Of the other three, two are now much whiter, but not so white as the third, which has been the longest in the gardens, and, as I remarked, became white at its first moult there. One of these two is nearly as fully marked as before, but has the actual markings so much reduced in size that it looks far more white than dark ; the other is nearly all white except for a band of small markings across the breast. It is clear that the white dress in males is assumed long before old age sets in.

F. FINN.

ZEBRA DOVES

SIR,—It may interest some of your readers to know that before my letter appeared in the October number my Zebra Doves had at last successfully brought off their two young which are now as strong as their parents, but of a much browner colour or rather brownish-grey instead of the blue-grey of the adult birds.

I attribute my success to the change of feeding ; I gave the doves a constant supply of Indian Millet, a daily supply of Secto mixed with biscuit meal which was slightly moistened to a crumbly consistency, to which I added a good allowance of ordinary loaf bread, crumbled up. This latter the Doves all seem very fond of, especially when nesting. I have found that all my Doves are very fond of coarse, I think it is called No. 2, biscuit meal quite dry. They all eat a lot of it and it seems very good for them. Next year I will certainly follow our Editor's good advice for both these and my Senegal Doves and put plenty of small twigs round their nests.

W. H. WORKMAN.

COCK FIREFINCH REARING YOUNG

SIR,—About a fortnight ago, believing that they had finished breeding, I caught up all my hen Firefinches and put them in an aviary with the young birds bred at liberty. I also made the usual winter arrangements for shutting the cocks up at night, but one succeeded in finding his way out again through the inward-pointing wire funnel and continued to roost in the garden. The day before yesterday to my great surprise he appeared with three young ones which he must have attended to for some time single-handed. Two, at least, were still alive this morning in spite of a severe frost, and I have great hopes of catching them up. Until recently the weather has, of course, been extraordinarily mild, but even so it is rather remarkable that in spite of the long nights and the absence of his mate the little tropical Finch should have accomplished his difficult task successfully.

TAVISTOCK.

11th November, 1928.

IMPORTATION OF RARE BIRDS

SIR,—In these days when, through the agency of numerous enterprising importers, we receive into this country so many rare and wonderful birds from every quarter of the globe it is greatly to be regretted that when these birds reach the aviaries of the fortunate aviculturists who can afford them, we hear no more about them. I am sure that with this great influx of rare birds during this last three years or so there must be hundreds of exceedingly interesting birds in this country of which we hear nothing. In the earliest numbers of the *MAGAZINE* there was a series of articles every month entitled "Rare Foreign Birds" to which members contributed a short note on any rare or unusual bird which they received. Could not this be revived again, because I am sure that members who fight shy of sending long articles either owing to lack of time or limited literary capacity would be glad to send just a short note.

During this last twelve months I have known of many extremely rare birds being brought to this country, Lories, Pittas, Tanagers, Sunbirds, and rare Australian Parrakeets, but once landed they were never heard of again. Even if members would only notify us of the

arrival of such birds through the columns of the MAGAZINE it would be of great interest.

Many birds have been imported of which nothing is known in the wild state and any notes of their behaviour in captivity would be of great scientific interest, it would also be of great assistance to future generations to know what species have been imported.

SYDNEY PORTER.

ABNORMAL CARDINALS

SIR,—I was interested to read in the October journal, Mr. de Southoff's remarks on abnormally coloured Cardinals. I possessed two such abnormally coloured birds as those he described. They were bred in my aviary in 1913. On turning up my notes of that time I find the following: "Abnormal colouring of young Red Crested Cardinals. Entire breast and under parts deep slaty grey, slightly paler under tail; crest and throat snuff-brown as in normal nestlings, neck, back and upper parts *dark* slaty grey; tail and flight feathers black. There was an entire absence of the usual white on the breast, under parts, and sides of neck, which gave the birds a decidedly sooty appearance. There were two of these strangely coloured youngsters in a nest of three—the third being a bird of normal colour. Neither of the two dark ones were so vigorous as the other and both died in December, being then $4\frac{1}{2}$ months old. The normal young one showed some red feathers on the head in November, but neither of the others showed any change of colour at all. It was unfortunate that they both died, as it would have been interesting to have seen whether they would eventually have assumed the normal plumage of the species, or retained their dark colouring."

I have since bred quite a number of young Red-Crests, but the two birds described above were the only ones that showed any variation.

HAMILTON SCOTT.

THE CRYSTAL PALACE SHOW

SIR,—The reference to the Crystal Palace Show in the November number impels me, at the risk of being thought platitudinous by some and revolutionary by others, to suggest that the Palace is *not* the place

to hold the greatest foreign bird exhibition of the year. The hall in which the foreign birds are placed has most of the drawbacks of the infernal regions without the compensating advantage of heat. A chilly gloom, feebly relieved by artificial light, is unfair both to the birds and to their owners. It does not show the beauty of the birds' colouring to anything like full advantage, and it exposes the more delicate exhibits to grave risk of chill. Many of my very best birds have never been shown at the Palace and never will be, for the simple reason that I do not dream of sending there anything that I mind losing which does not come straight from an outdoor aviary. In making these criticisms I do not wish to throw any aspersions either on the Show Secretary or on the Crystal Palace management; both do their best with the accommodation available. What it simply comes to is this: that huge glass buildings like the Crystal Palace or Olympia are quite unsuited to the exhibition of foreign birds in cold weather.

With regard to a practical alternative suggestion, I must confess I am not so well equipped as a critic should be. It does occur to me, however, that it might be possible on the same date as the Canary and British Bird Show at the Palace to hold a show for foreign birds only in some suitable and accessible London hall.

TAVISTOCK.

FRENCH AVICULTURAL MEDALS

SIR,—The Council of La Société Nationale d'Acclimatation de France has awarded silver medals to Dr. M. Amsler for breeding the Hermit Thrush (*Hylocichla guttata*); and to Mr. H. Moore for hybrids between the Black-cheeked Lovebird (*A. nigrigenis*) and the Masked Lovebird (*A. personata*). Each of these two successes is the first of its kind recorded in Europe.

In connection with the granting of breeding medals a new rule has come into force, to the effect that henceforth medals will not be awarded for the breeding of hybrids, or for those sub-species of which an allied form has previously been bred.

The Executive Committee of the Avicultural Society does not, of course, award medals for the rearing of hybrids.

A. A. PRESTWICH.

HYBRID LOVEBIRDS

SIR,—I have been honoured by the award of the silver medal of the Société Nationale d'Acclimatation de France for my hybrids *A. nigrigenis* × *A. personata*, but I question whether produce from parents so closely allied should be classed as hybrids at all. The various African Lovebirds reproduce so easily that it is clear they are basically of the same species. Further, some of these Lovebird hybrids (*sic*) have reproduced, a sure sign that their parents were closely allied in blood ties. If a greyhound crosses with a bulldog no one would dream of classing them as hybrids, they would be termed mongrels or crosses. Has this question of the limitation of the term hybrid been discussed previously by our Society of which I am but a new and humble member?

H. MOORE.

BREEDING AVADAVATS

SIR,—If members would write to the Magazine more freely about such simple matters as the letter of Mr. H. L. Sich on the breeding of Bengalese in the October number of our Magazine refers to, it would, I am sure, be helpful to many of us.

I bred from a pair of Bengalese this year. I did not expect much from them, because it was only towards the end of the season that I had a big cage to spare for them. I got only three eggs: two hatched and one egg was infertile, but the two young were reared by the parent birds in the most exemplary manner. I used a wicker Hartz Mountain Canary cage for the nest. Mr. Sich does not tell us the nesting receptacle he used. Perhaps that was at fault. My hen Bengalese seemed to sit from the day the first egg was hatched. Perhaps this accounts for the difference in the size of the young and the substitution of dummy eggs till the last of the clutch is laid might help to solve the problem.

In any case these little birds are reputed to breed so freely and would be of such value as foster parents that it is, I think, well worth an effort on the part of our members to solve the problem of their successful breeding. The solution of a problem such as this would, I think, be of more real value to aviculture than the purchase of a pair of birds imported for the first time; their release in an aviary; their capricious breeding and the winning of a medal.

GODFREY DAVIS.

THE NESTING OF LOVEBIRDS

SIR,—Having noticed the remarks of Lord Tavistock and others *re* the need for dampness in the nesting of Lovebirds, I thought perhaps the following would be of interest; however, you will know if it is of general interest or not.

My pair of Masked Lovebirds went to nest in a large coconut-husk hung up in the inside aviary shelter, which is, of course, perfectly dry. They stripped bark from the branches in the outside flight, passing these strips backwards and forward, through their beaks until perfectly soft, then they put them into their drinking water. When the strips were thoroughly soaked they carried them to the husk and made the nest with them. They also went through the same process in adding to the nest after the young were hatched. Three chicks were hatched, one died at three weeks old and the other two are now flying. All the strips were carried in the beak, not in the feathers of the rump.

H. A. COLLIN.

[A coconut-husk is not a very suitable receptacle for a Lovebird's nest, being too small. A wooden box is preferable.—ED.]

AVICULTURAL NOTES

By THE EDITOR

In our MAGAZINE for February, 1928, there appeared a coloured plate of a blue variety of the Masked Lovebird that had been imported by Mr. Chapman, and acquired by the Zoological Society. This bird, which appears to be the only blue specimen known, proved to be a male, though it is considerably smaller than the normally coloured female with which it has been mated. The blue bird had imperfectly featured wings at first, and it was late in the season before it could fly sufficiently well to be put out into an aviary. Eggs were laid in a box in a cage, but, though fertile, they did not hatch. Since the pair have been out, however, they have reared a brood of fine healthy youngsters, and now have a second brood in the nest.

As was to be expected, the young are normally coloured, but it will be very interesting to see what happens in the next generation. There seems no reason to suppose that in breeding from these young birds Mendel's laws of heredity will not apply, and from these young birds we shall expect to obtain 25 per cent of blue offspring, or if we mate the blue cock to one of his daughters we should obtain round about 50 per cent of blue birds.

In Budgerigar breeding at the Zoo during the past year, we have obtained a slightly larger proportion of blue birds than was to be expected. In breeding from blue-bred birds, bred in 1927 from blue cocks and green hens, we obtained the following results. From twelve pairs we reared 103 birds, of which 74 were green and 29 blue. In another aviary 7 blue cocks were mated with 7 blue-bred hens (bred in 1927 from green cocks and blue hens). Result: 65 young reared, of which 27 were green, 36 blue, and 2 white.

The Ceylon Jungle-fowl which was always said to be not only difficult to obtain, but to keep alive when obtained, has proved to be a very free breeder. Through the kindness of Mr. Walter Shakspeare a pair was secured early in the year, and these have hatched and reared two broods of chicks, the second brood, although hatched as late as October, being reared without difficulty.

The Paradise Sheldrake (*Casarca variegata*), once so common in New Zealand, is now said to be extremely rare. It is a very hardy species and breeds freely in captivity, and if there are sufficient in captivity to keep the species going there should be no difficulty in doing so. Four young were reared at the Zoo, and eight in the Scilly Isles last year. It is the best of the Sheldrake from the avicultural point of view.

CANDIDATES FOR ELECTION.

- R. P. BENDALL, Poplar Hall, Brookland, Kent. Proposed by Walter E. Barnett.
 G. E. BRIDGEMAN, 10 Pine View Gardens, Torquay. Proposed by Denys Weston.
 W. BURRELLS, 35 Rowdowns Road, Dagenham, Essex. Proposed by C. T. Newmarch.
 MRS. CHANNER, Webbery, near Bideford, N. Devon. Proposed by C. T. Newmarch.
 MRS. FORESTER, Hurdcott House, Barford-St.-Martin, Salisbury. Proposed by Miss L. Christie-Miller.
 MISS MIRIAM HUTCHINGS, Arreton, Layters Way, Gerrards Cross, Bucks. Proposed by Mrs. Procter.
 JAMES E. LEWIS, 1570 E. California Street, Pasadena, California, U.S.A. Proposed by I. S. Horne.
 A. ST. ALBAN SMITH, F.Z.S., Seletar, Singapore, F.M.S. Proposed by D. Seth-Smith.
 MRS. BELLE J. BENCHLEY (Executive Secretary), Zoological Society of San Diego, San Diego, California, U.S.A. Proposed by E. H. Lewis.

NEW MEMBERS.

- WILLIAM BOTT, Gwent, Walton-by-Clevedon, Somerset.
 JOHN S. BOYLE, The Farm House, Shirburn, Watlington, Oxon.
 MISS JOAN EVANS, 8 South Eaton Place, London, S.W.
 E. G. RUTHERFORD, 1115 Carlford Way, Beverly Hill, California, U.S.A.
 MRS. DOUGLAS VROOM, 555 South Wilton Place, Los Angeles, California, U.S.A.

DONATIONS.

	£	s.	d.
T. HEBB		10	0
MARQUESS OF TAVISTOCK	7	7	0
MRS. J. P. CAMPBELL	1	0	0

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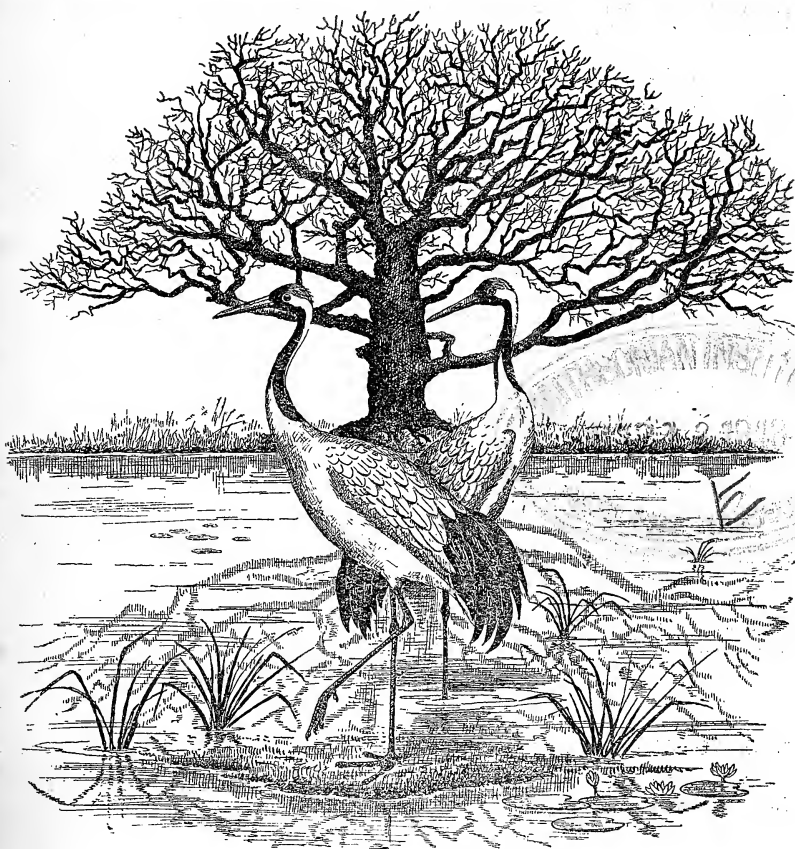
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THE Avicultural Magazine



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THE AVICULTURAL SOCIETY.

FOUNDED 1894

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The Subscription to the Avicultural Society is £1 per annum, due on the 1st of January in each year, and is payable in advance. The entrance fee is 10/0. The *Avicultural Magazine* is sent free to members monthly. Members joining at any time during the year are entitled to the back numbers for the current year, on the payment of entrance fee and subscription.

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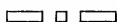
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That this compilation shall be an authoritative book of reference, it is essential that every member of the Avicultural Society should be included.

We, therefore, take the liberty of requesting those members, who have failed to supply us with notes on their avicultural career, to rectify the omission without delay.



“Parrots and Parrot-like Birds in Aviculture.”

BY

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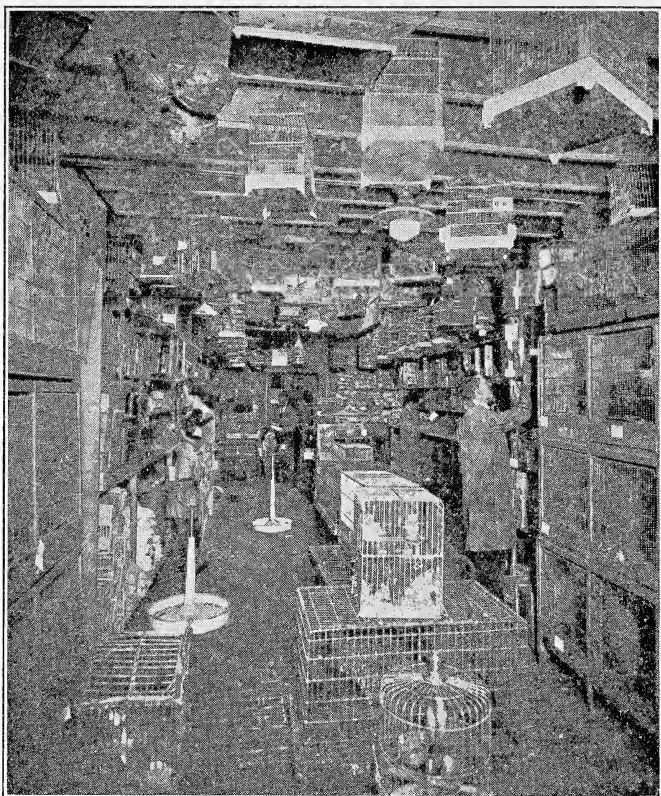
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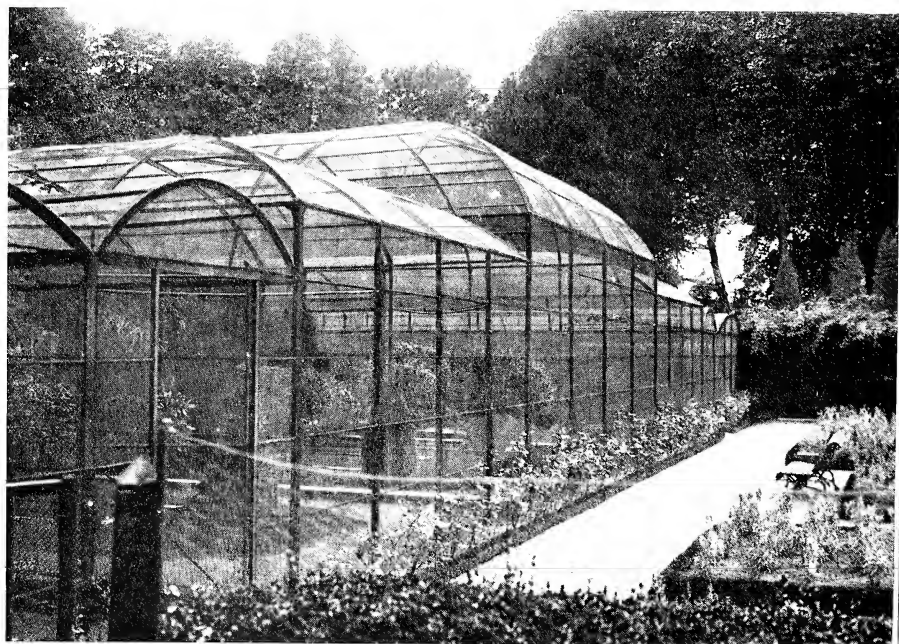
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IN FREEDOM & CAPTIVITY

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FEBRUARY, 1929.

BIRD NOTES FROM CLÈRES

By J. DELACOUR

To start with my largest birds, I should say that we have had very little success with them in 1928. Out of three pairs of adult White Rheas, only five young were hatched and reared, while out of six young Darwin's Rheas, bought from Hagenbeck, only two survived. The others apparently could not stand our cold and damp summer nights. Many clear eggs among the Pheasants; such was the case with Noble and Vieillot's Firebacks, Polyplectrons and Sœmmerrings. However, a good many Siamese Firebacks, Eared Pheasants (Hoki's), Bel's, Reeves', Versicolour, Corean Ringnecks, Dark-coloured (mutant) were reared. Edward's Pheasants were hatched, but not reared, and two hybrids (three-quarters Edward's and one-quarter Swinhoe's) died when three months old. Two Sonnerat's Jungle Fowl, two Imperial Pheasant, and one Argus were fully reared. Many hybrids born from a pure cock Javan Jungle Fowl and half Java \times Bankiva hens were hatched, but none reared to maturity. Some Bankivas were reared in the park and woods, as well as Wild Turkeys, but young Monauls were destroyed by Crows. Some good additions to my Pheasants collections during the past year are two cocks and one hen Mikados, one pair of the new Lewis' Pheasants, from Cambodia, Bornean Argus and Rheinardt's.

For the first time my numerous Cranes have been separated in pairs in different fields. I hope some will nest next year. I have tried *Cariamias* at liberty ; one male of the Crested species proved dangerous to other birds, while a female and one Burmeister's, are quite harmless. They are amusing and absurdly tame.

I have added some American Red Flamingoes to my flock of Europeans. Since they have been shut in at night I have had no losses, and when the birds are fully acclimatized they will prove quite hardy ; the main thing is to avoid, with newly imported birds, the cold summer nights.

One young Black-necked Swan has been reared, out of two eggs laid for the first time by an imported pair. Some Ashy-headed, Ross's, and Blue Snow Geese were bred. I was able to add several interesting and rare species to my collection of Waterfowl during the last summer : Red-breasted, Abyssinian Blue-winged, Siberian Bean Geese, South African and Paradise and Rajah Shelldrakes, Steamer Ducks, and Madagascan Teal (*A. bernieri*). Some three hundred young have been bred the last season, including Ringed, Chilian, Blue-winged Teal.

I have now a dozen Eider Ducks in perfect health, and as some are now three years old I have hopes of their breeding next spring. Scoters, sent from the seashore, have been on the lake for several weeks and seem to do very well.

My friend Mr. Spedan Lewis sent me a fine pair of Snowy Owls, which I have housed in a quaint aviary arranged in a ruined tower, where they are doing beautifully.

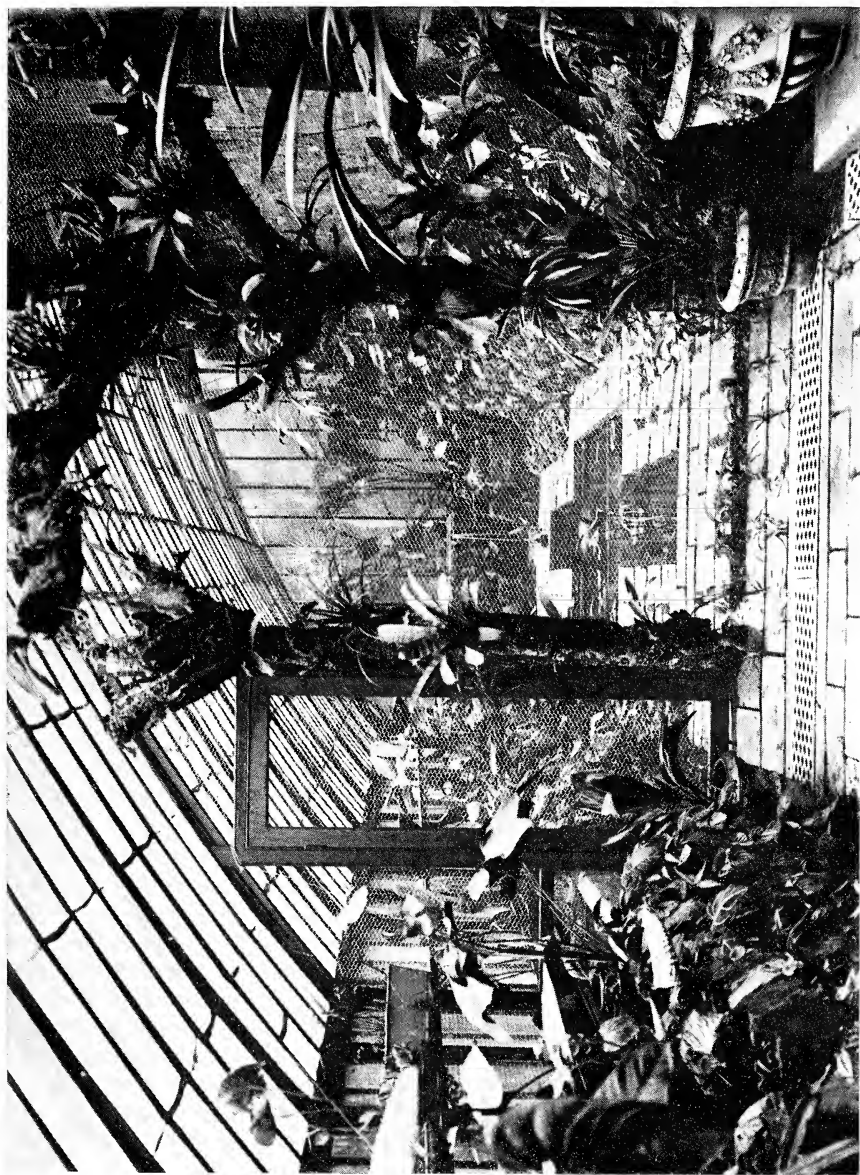
In conclusion, let me give news of my greenhouse aviary, of which I told you last December. All the birds have been doing beautifully in it so far, with the exception of the Tanagers, many of which died as a result of their feeding too much on the Sunbirds' food ; that cannot be avoided. Blue-winged, yellow, violet, and all greens are exceptions and still flourish. Sunbirds, Sugar-birds, and Pittas are perfect, and also one pair of King Birds of Paradise, and a pair of Amethyst Starlings which I added to the little collection two months ago.



FLAMINGOES
(AT CLERES)



THE LAKE
(AT CLERES)



THE GREEN HOUSE — AVIARY AT CLÈRES

NESTING NOTES FROM FOXWARREN, 1928

By ALFRED EZRA, O.B.E.

I publish the following nesting notes from my aviaries hoping that members may find them interesting. Although the year 1928 began well, and everything looked most promising, and a number of nests were built and eggs laid, very few birds were reared.

SILVER-EARED MESIA (*Mesia argentaurea*).—Built a cup-shaped nest of dried grass in a box bush. Three eggs laid. Two young hatched. Drowned during rainstorm when a week old.

EDWARD'S LORY (*Trichoglossus haematodes*).—Laid two white eggs in an upright nesting box with concave bottom. Both eggs broken during incubation; a second clutch of two eggs were incubated for ten days. Young died in shell.

CHESTNUT-BREADED ROCK THRUSH (*Petrocincla erythrogastra*).—Nest built of hay, moss, wool, and leaves. Cup-shaped in an open box. Two clutches of two eggs each, creamy-white ground with fawn-coloured spots. Both lots deserted after a few days. Eggs fertile. [A coloured plate of this species appeared in the MAGAZINE for July, 1913.—ED.]

DIAMOND DOVES (*Geopelia cuneata*).—Three young successfully reared.

SWINHOE'S PHEASANT-TAILED PIGEON (*Macropygia swinhoei*).—Five young fully reared. One egg only in each clutch. These birds have not stopped breeding since October, 1927, when they reared the first young. They kept it up all the winter and all last summer. One young just left the nest (November).

SUPERB STARLING (*Spreo superbus*).—Two pairs of birds had young. Two young died soon after leaving the nest. Three others died in the nest before being properly feathered.

BLUE-WINGED SIVA (*Siva cyanopectus*).—Birds nesting all the season but no nest completed.

CROWNED STARLING (*Galeopsar salvadorii*).—Built a cup-shaped nest in a basket, using hay, moss, paper shavings, and wool. No eggs laid.

JAPANESE MAGPIE (*Cyanopica japonica*).—Only carried material about but did not take up building seriously.

HARLEQUIN QUAIL (*Coturnix delegorguei*).—One pair hatched four

young and reared successfully. Nest not found. Another pair laid two clutches of eggs under a bush. These were not incubated. Third clutch, four young hatched out, of which three were fully reared.

WHITE-BREASTED PIGEON (*Gallicolumba jobiensis*).—Three young fully reared. One egg in each clutch only.

SHAMA (*Kittocincla malabarica*).—Several eggs laid, some of which disappeared. Probably eaten by parents. None fully incubated.

WHITE-CAPPED STARLING (*Heteropsar albicapillus*).—Built nest like Crowned Starlings, but dome-shaped. No eggs laid.

BLUE BIRD (*Sialia sialis*).—Four nests and several eggs. No young reared.

TRICOLOURED PARROT FINCH (*Erythrura trichroa*).—Eggs laid but no young reared.

LONG-TAILED GRASS FINCH (*Poëphila acuticauda*).—Eggs laid but no young reared.

ALEXANDRINE PARRAKEET (*Palæornis nepalensis*).—Lutino hen mated to green cock-bird. Two eggs. Both hatched and fully reared. Colour of young same as cock bird, green. Of the same species my blue cock mated to green hen. A clutch of four eggs, all infertile.

BARRABAND PARRAKEET (*Polytelis barrabandi*).—Four eggs laid. All hatched and fully reared.

RING-NECKED PARRAKEET (LUTINO) (*Palæornis torquata*).—Two eggs. Both infertile.

SLENDER-BILL STARLING (*Cinnamopterus tenuirostris*).—21st May: Cup-shaped nest inside aviary shelter composed of dried grass, wool, fine shavings, moss, and feathers. Two eggs, which disappeared. 29th June: Three more eggs in same nest. All disappeared. Probably eaten. Colour of eggs pale blue spotted with small light and dark red spots.

PASQUIER'S JAY THRUSH (*Garrulax moniliger pasquieri*).—Cup-shaped nest in basket composed entirely of dried grass. Three eggs, greenish blue. Disappeared during incubation.

PIED GRALLINA (*Grallina picata*).—One young reared as described in October number of the MAGAZINE.

RENAULD'S GROUND CUCKOO (*Carpococcyx renauldi*).—12th May: Nest on ground under a bush, made of twigs and leaves. Three eggs,

two of which were infertile. The third had an undeveloped chick. 12th June: Another nest built in a wicker basket inside the aviary shelter. The basket about eight feet off the ground. Laid four eggs. After incubating for a fortnight two eggs had disappeared and the other two were deserted. Fully developed young in one egg. Started sitting on three eggs again in the same nest on 20th July. Deserted after incubating for three weeks. Signs of young in two eggs. Both birds took turns in incubating and sat tight like an old hen, not in the least bothering about anyone going into the aviary. Eggs oval shaped, pure white, gradually becoming stained.

JAPANESE ROBIN (*Erithacus akahige*).—In May built nest in flower-pot inside aviary shelter, chiefly of dried grass and hair. One egg was incubated after hen being eggbound. Deserted later. Egg contained young bird. July 11th: Laid again in same nest and was seen feeding young for about four days. Later nest empty. Eggs pale blue.

In the animal enclosure at liberty :—

MANCHURIAN CRANE (*Grus japonensis*).—One egg laid, infertile.

NORTH AMERICAN TURKEY (*Meleagris gallopavo*).—Three young fully reared.

WHITE PEAFOWL (*Pavo cristatus* var.).—Two young fully reared.

BLACK-SHOULDERED PEAFOWL (*Pavo c. nigripennis*).—Two young successfully reared.

MONAUL PHEASANT (*Lophophorus impeyanus*). Eight young fully reared.

SONNERAT'S JUNGLE FOWL (*Gallus sonnerati*).—Three young. Two killed by Jays and only one reared.

RED JUNGLE FOWL (*Gallus gallus*).—About thirty successfully reared.

GOLDEN PHEASANT (*Chrysolophus pictus*).—Only three reared.

CHUKOR PARTRIDGE (*Alectoris chukar*).—A good many reared.

BRUSH TURKEY (*Catharturus lathami*).—Built a huge mound. No young seen. Ten infertile eggs found in the mound.

THE BREEDING OF THE YELLOW-WINGED SUGAR-BIRD IN JAPAN

By YASHMORI MATSUNAGA

During the breeding season of 1928 I was fortunate enough to rear two chicks of the Yellow-winged Sugar-bird (*Cæreba cyanea*) in my aviary, and if this record is a help to others I shall be very pleased.

I obtained my pair of these birds in 1926 and they were fed chiefly on banana and orange when they came to my aviary, but it is difficult to get such fruits abundantly here, so I tried to change their food, and was successful in substituting the Japanese soft food with honey. At first I gave this food in almost a liquid state, and in a few days the birds began to take it, and after a week they could do well without fruits.

I placed them in an aviary of $8 \times 3 \times 6$ feet, of which a space 5 feet is uncovered. There are lots of plants in the open portion of the aviary.

I took the birds from this aviary to a cage in December and kept the cage in a room until April, when I put them again into the aviary. As they were doing very well in the aviary, I did not take them out during the winter, and they thrived and were in very good health all the season. I neither cover the aviary, nor shut the glass windows which are attached to the covered part.

My place is rather warmer than other parts of Japan and we have only three or four days during the winter that the temperature goes down under -5° and generally it stays about -2° Centigrade.

In May they showed signs of breeding and began to build their nest in a shrub in the aviary.

This nest was completed on 3rd June and consisted of fibres of the Japanese palm (*Chamaerops excelsa*) and cocoa-nut. I saw the first egg on the 8th of June, and in the early morning of the 10th I saw the second one. The incubation was carried out entirely by the female who was utterly ignored by her mate, so she had to leave the nest several times every day in order to take her food. On the 1st of July I found the eggs were clear. The egg is pale brown with dark spots on

it and it is quite large compared with the size of the bird. It measures $18 \times 14-15$ mm.

On 4th of July the first egg of the second clutch was laid and the next day another and the hen bird sat on them immediately. In the morning of the 19th two dark brown chicks were hatched out. The colour of the chick is blackish brown and, unlike its parents, its bill is as short as that of a nestling Finch.

I fed them chiefly on spiders, and occasionally green caterpillars, such as are found on the leaves of roses and cabbages. The parents gave this food to the chicks, covering it with honey which they have sucked into their crops. At this time they took no notice of fruit, though I gave it to them.

The third day after hatching, the length of the quills were about 6 mm. and black feathers were showing on the back, and after a week the pinion feathers grew 15 mm. and the whole body was covered with feathers and the eyes opened. At about this time the bill grew about 10 mm.

One chick left the nest on the 31st of July and the other on the 1st of August, so it took 13 and 14 days for the chicks to leave the nest, but I think in the wild state where they can get plenty of insects they may leave the nest in about 12 days.

The colouration of the chicks at this time was similar to that of the female, but the sides were pale grey and the bill much shorter than that of the adult, and the legs were greyish black instead of orange red.

The chicks had very little power of flight when they left the nest, but soon they were able to fly well after their parents asking for food.

In about two weeks the bills grew as long as those of the adults and the greyish white flanks turned to green.

I gave water-melon to them on the 13th of August, but they looked at it with suspicion at first, and did not go near, but the next day the parents ate vigorously and on the 16th I saw the chicks peck it by themselves.

This paper is written on 2nd of September, but still the chicks fly after the parents for food so I wonder when they will become quite independent.

I will write later on this subject and that of moulting.

At present one of the chicks has a faint tinge of cobalt blue on its sides and sometimes it erects its occipital feathers, so I imagine that this may turn out to be a male.

EXPLANATION OF THE FIGURES

FIG.

1. The aviary in which the Sugar-birds bred. The nest is situated in the shrub a few inches behind the pole of the aviary shown in the centre.
2. Two eggs of the Yellow-winged Sugar-bird. The three white eggs are those of the Gouldian Finch.
3. Female on side of nest, brings food to the chicks.
4. Young Yellow-winged Sugar-birds 27 days after they left the nest.
5. The female bird after breeding became tame enough to take food from the hand.

ON SEVERAL UNSUCCESSFUL NESTING ATTEMPTS OF THE CUBAN OR RED-SPECKLED CONURE

By A. A. PRESTWICH

It has often been asserted that aviculturists take a secret delight in hearing of the misfortunes and failures of their fellows. This seems inconceivable, but such an assertion is possibly true of a small section of the community composed of "bird-keepers"—they are unworthy to be called aviculturists.

If on the other hand such a state of affairs really exists, then, indeed, this recital of the long series of nesting failures of my Red-speckled Conures should give eminent satisfaction to not a few readers.

We so often read of the successful breeding of a species that, in any case, an account of a failure should be quite refreshing, and at the same time act as an incentive to members to relate some of their less fortunate experiences.

Towards the end of April, 1924, I received from Mr. G. B. Chapman a pair of so-called Cuban Conures (*C. euops*); at that time they were considered something of a rarity. This species had, of course, been

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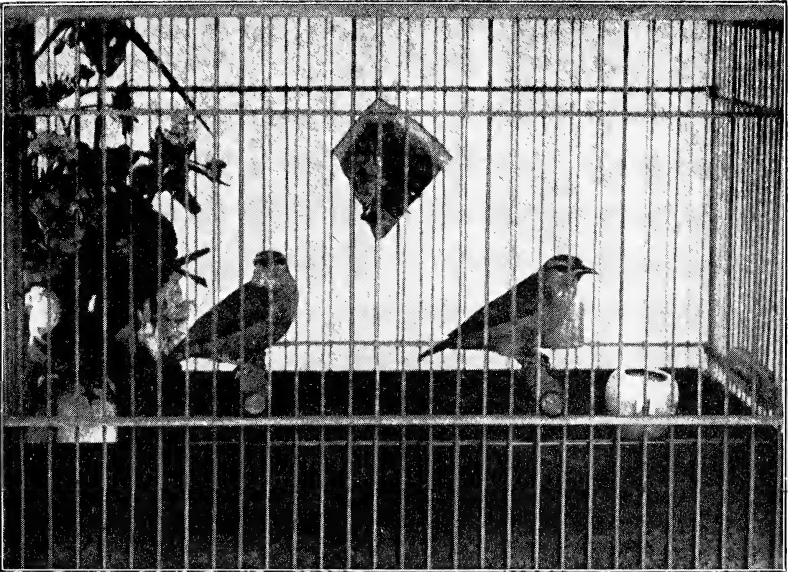
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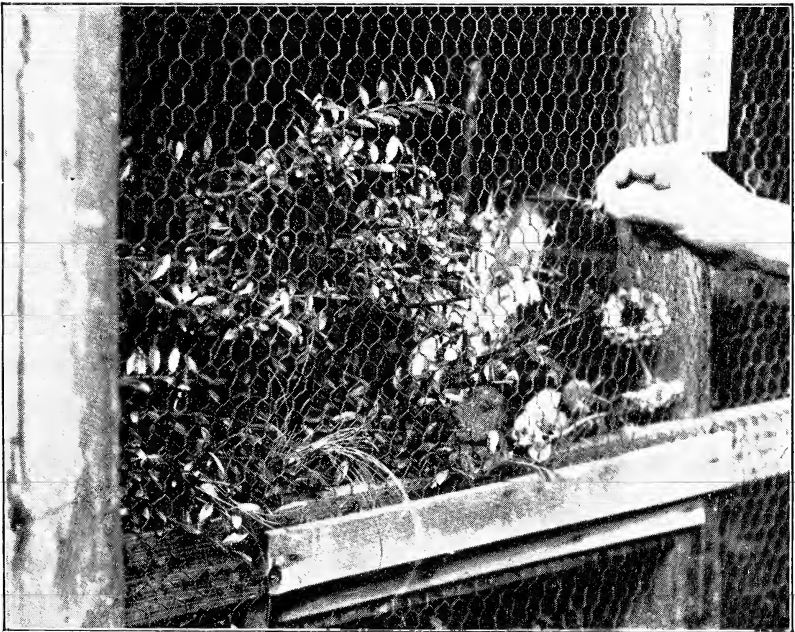
FIGS. 1-3.—BREEDING THE YELLOW-WINGED SUGAR-BIRD.



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FIGS. 4 AND 5.—BREEDING THE YELLOW-WINGED SUGAR-BIRD.

imported previously, but at the time of which I write they were rather uncommon on the market.

They were in pretty fair condition on arrival, except that each had the flight feathers of one wing cut—a misfortune only too common where South American Parrakeets are concerned. I intended keeping them caged until such time as they might be able to fly, but their shrieks were intolerable and I had grave thoughts of returning them on this account. Now, however, I am extremely glad that I did not do so, as I have seldom had a pair of more amusing and engaging birds. The weather seemed fairly settled so I risked turning them out into an aviary, 55 feet long and 22 feet wide, which was already occupied by numerous Budgerigars, Cockatiels, Rosellas, Lineolated Parrakeets, etc., all living in more or less harmony.

The Conures quickly adjusted themselves to their new surroundings, and behaved tolerably well until their new feathers had grown and they were able to fly. They then asserted themselves as rightful rulers of the aviary, and became something of a nuisance, not only on account of their bullying the other inmates, but because of their almost incessant cries and the damage they wrought to the woodwork of the aviary.

They are extremely active birds, always on the move and when flying one is afforded an opportunity of seeing the lovely brilliant red under wing-coverts—the chief beauty of this species.

It was not expected that they would attempt to nest during the first couple of seasons, as Parrakeets of this description require at least two years to attain the necessary condition. No attempt was made during 1924 or the following year, and I do not think that they even inspected nest-boxes, except out of curiosity as to the doings of the other birds. They are quite the most inquisitive birds I have ever possessed: the slightest thing out of the ordinary or anything fresh has to be investigated and examined minutely. At one time a pair of Yellow-backed Lories in a neighbouring aviary was a never-ending source of wonder and amusement to them. Possibly they were jealous of the almost complete suits of red worn by the Lories, whereas they themselves only had spots and patches of the same colour! They chewed up a number of coco-nut husks, but this was only part

of their programme of wanton destruction. In April, 1926, I had them caught and sent down from London and turned out into a much smaller aviary 18 feet long, 6 feet wide, and 6 feet high, to which was attached a shelter house 6 feet wide, 4 feet deep and $7\frac{1}{2}$ feet high at the back, sloping down to 6 feet at the front. This aviary was at first shared with a pair of All-green Parrakeets. The latter, however, had to be removed to other quarters, as the Euops attacked them in a most frenzied manner, and I feared for their safety. About a week after their arrival in the New Forest district they commenced chewing up nest-boxes and at the beginning of May found one that apparently suited their requirements. This was a horizontal box some 18 inches long, 9 inches wide and 9 inches high, with the entrance hole high up in a corner of the front. A depression had been made in the bottom at the end further from the entrance hole, and a false sloping floor had been fitted in an attempt to ensure that the female would lay nowhere but in the desired place, or alternatively that the eggs, if laid elsewhere, would roll along to the depression—rather an optimistic expectation.

Eventually five eggs were laid and all seemed to be going well. When at the end of three weeks I ventured to open the inspection door to my great disgust I found only the remains of several eggs. Whether the eggs were infertile and they tired of sitting or whether they had eaten them to spite me for looking in their box before the actual commencement of incubation I cannot say, although, when I made my inspection, both birds were out in the flight. Possibly their insatiable inquisitiveness had led them to sample their products. They hardly left their box during the next few weeks, probably through shame of their fell deed, but they finally emerged from retirement, and once more made the countryside hideous with their cries.

Both birds incubate, and during such period are almost silent and rarely seen. The only sound heard is a pretty and gentle little "croon" coming from the nest-box, but whether this is made by both birds or only the male it is impossible to determine. During August a second attempt was made, and this time I believe the clutch consisted of four eggs. Sad to relate the male (presumably) succeeded in gnawing a hole through the bottom of the box, with the result that the eggs fell through. The old box was replaced by a similar, but stouter.

Towards the end of March, 1927, another endeavour was made. The female successfully laid one egg when a cold snap intervened, the result being that she was found in the shelter badly egg-bound. After being subjected to considerable heat she delivered herself of the offending burden. This egg, which measured 29×23 mm., only slightly larger than the average, was found to be double-yolked. Thus another attempt came to naught. The delight of the male was unbounded when his partner was returned to the aviary, and it was charming to see the way he crooned over her and preened her feathers. A sailor's return was completely eclipsed by this reunion.

Nothing daunted, a fourth essay was made at the beginning of September. Four eggs were laid, and were eventually broken. Absolute quietness reigns in the neighbourhood of the Conures' aviary, nevertheless they are very restless and instead of calming down for the incubation period they are, if anything, more unsettled. They rarely actually leave their nest-box, but they can be heard scuttling round and round inside, nibbling at the wood and apparently playing. This inconsistent behaviour would appear to be the cause of broken eggs in the first place, and now it would seem that they are confirmed egg-eaters.

Once more about Easter last year the Conures became silent and I knew that they were yet again about to attempt to reproduce themselves. I did not attach much importance to this effort, supposing that it would end in disaster as its four predecessors, but still eternal hope prevented me from disturbing them and I refrained from breaking into their privacy. My supposition proved correct and this batch of eggs was likewise destroyed. They nested yet a sixth time in August and to my unbounded surprise did not eat the four eggs laid, but sat most diligently. Unfortunately, however, they proved infertile. Possibly all the previous clutches have been similarly lacking fertility, and the producers have tired of sitting. The female has now laid upwards of thirty eggs—a record that compares favourably with those of some backyard fowls !

I am hoping for greater success this year and great will be my rejoicing should the next attempt give the desired result. During the four and a half years I have had these Conures they have eaten little in the seed line but white sunflower, and of this they husk about an

ounce each per day. I estimate that since they came to me they have shelled approximately two hundredweight. A little canary seed is eaten occasionally, but not millet. As regards fruit, they are very partial to apples and it is immaterial whether they are sweet or not, provided they are soft. They, in common with the majority of Conures, waste very much more than they consume. Sometimes they will partake half-heartedly of a sweet orange. They are exceedingly fond of bathing and rarely miss a day, no matter how cold the weather.

After a considerable amount of observation I am able to note several differences as regards the sexes. The female is slightly smaller and somewhat slimmer than the male. The male has a larger and flatter head, also his upper mandible is larger, broader, and appears more hooked than that of his mate. Many more red areas are observable on the male, but I do not think this point could be relied on as an indication of sex, as the areas become more numerous yearly and would seem to denote age. When the under wing-coverts are compared it is noticed that the male is coloured a rather more brilliant red, also the scarlet band is more extended than in the female.

My birds have attained an extraordinary size and greatly exceed any other examples of this species I have yet seen. Their large size cannot be attributed to fat, gained on account of their sunflower seed diet, as they are in perfect condition.

I have more than a faint suspicion that my birds may be examples of *Conurus chloropterus*, from which species *C. euops* differs but little except in size. The habitat of the former is San Domingo, whereas that of the latter is Cuba; but these two islands are only about fifty miles distant from each other, so it may well be that the one species is merely a lesser race of the other.

For the benefit of those members who are unacquainted with this species I append the description given by Salvadori in the *Cat. Birds Brit. Mus.*, vol. xx, p. 186.

Adult male.—Green, underparts a little lighter; head and neck dotted here and there with red; also the thighs often with some red feathers; whole of the smaller under wing-coverts and the carpal edge red; greater under wing-coverts, quills, and tail-feathers below olive, the quills dusky towards the tips: bare skin round the eyes bluish

white: "bill whitish flesh-colour; feet pale flesh-colour; iris white-yellow" (Finsch). Total length about 10·5 inches, wing 5·2, tail 5; bill 0·8, tarsus 0·53.

A coloured plate—not in the usual Goodchild style—appeared in *Bird Notes*, vol. v, New Series, May, 1914, accompanied by a very full description from the pen of the late Dr. Lovell-Keays.

PIGEONS

By A. DECOUX

Pigeons, like Parrots, are a very homogenous family, with such distinct characteristics that the most superficial observer could not confound a Pigeon with a bird belonging to any other family.

The two dominant characteristics are the shape of the feet and beak. The tarsi are short, thick, sometimes covered with down; the toes—three in front and one behind—are furnished with short curved claws. The beak is straight and slender, rather weak, horny only at the tip, its base is covered with a soft membrane which comes to below the long nostrils, which are rounded at the ends; in certain species the nostrils are wide and open.

They have round heads, prominent foreheads, and thick-set bodies; their wings are long and pointed, and usually have ten flight feathers. Their tails may be either short and rounded, or, as in certain species, long and conical. The twelve rectrices are strong and hard. The plumage is thick and evenly distributed, grey is usually the dominant colour, but the wings and neck are frequently ornamented with metallic hues. Pigeons are spread over the whole surface of the earth save the Polar regions. They are monogamous and live paired; some kinds go in flocks. The nests are made of twigs and straws in trees, sometimes in holes in cliffs, rarely on the ground. The clutch usually consists of two eggs, in some cases of one only.

The young are fed for the first days of their lives on a milky liquid secreted from the crops of the old birds when nesting; therefore it is unnecessary to change their usual food when they are feeding young.

Pigeons feed on seeds and hard fruits, such as acorns and beech nuts. Some kinds (*Carpophaginæ*) are fruit eaters. They drink without throwing back their heads, sucking up the water instead of letting it run down their throats as most other birds do.

Pigeon, Dove, and Turtle Dove are names which do not correspond to any scientific classification; but as a rule the large species are popularly termed Pigeons, and the smaller Doves and Turtle Doves.

Pigeons and Doves are good aviary birds on account of their hardiness, beauty and elegant forms as well as by the ease with which they accommodate themselves to our climate and breed in confinement. Most of them are hardy enough to live all the year round in the open provided they are given a comfortable, dry, and light shelter where they can take refuge when it rains and on frosty nights. Many species find the branches of a conifer or other evergreen sufficient protection, but others require a certain amount of heat, such as for instance the Pigmy Doves of America and the Masked Doves, etc., which should be kept out of reach of frost from November to the end of March.

Some Doves can stand low temperatures yet must not be left out during winter because their feet are apt to get frost-bitten; this does not actually kill them, but they become crippled and useless for breeding from; Bleeding-heart Doves, the *Geotrygon*, Smith's Doves, and the Blue-headed Doves from Cuba, etc., are particularly subject to frostbite. For this reason they should be taken in for the winter, or, which is far better, installed in frost-proof aviaries which are *very slightly* heated.

Doves are most delicate just after they reach Europe. They are timid, rather stupid birds, startled by the least thing, when they dash themselves, head foremost, against the bars of their travelling cages. Some species have very thin skulls and kill themselves outright in their panic¹; others severely injure their heads and are "scalped" for the rest of their lives. To avert such accidents, the tops of the travelling cages should be padded and the birds should get light without being able to see out. Supposing them to arrive in good condition, and if the year is not too advanced the best thing is to turn them into

¹ The Passerine, Talapacoti, and other Pigmy Doves are particularly liable to this sort of accident.

a sheltered aviary well provided with boughs and fine sand, of which they should be the only occupants ; let them out in fine weather for a few hours, but shut them in in wet or windy weather and at night, for many species dislike wind. In this way the birds will get used to confinement and grow tame ; it will then be time to settle them into their permanent aviary among other birds.

If, unfortunately, the birds arrive ill or very tired, they must be caged or placed in an inside aviary which should be well provided with green boughs. If they are caged we would advise box cages with stretched canvas tops, or wicker cages ; the cages should be placed high up near the ceiling and covered with a cloth if required. Every precaution must also be taken to prevent panics when the daily cleaning takes place.

Although I have seen and even owned Doves tame enough to feed from their owner's hand, I consider them generally speaking timid and nervous. For this reason they are not adapted to cage life, and should be aviary birds.

Provided they are well fed and cared for, a month to six weeks is usually long enough to enable the birds to recover from the effects of their journey. We will mention their special ailments presently.

FOOD

With exception of the *Carpophaginæ*, which live on fruit, all Pigeons live on seeds and greenstuff. The small Turtle Doves eat red and white millet and canary seed. The larger Doves and Pigeons chiefly live on hemp, corn, buckwheat, rice, etc. We usually feed them on a mixture of equal parts of corn, buckwheat, kibbled maize, and jarrah peas and vary it now and then by adding rice, ordinary kibbled peas, and hemp. This last is usually given in cold weather or in spring when the birds are pairing. The Doves also have bread and milk or boiled rice, prepared by being turned into cold water after cooking, as this keeps the grains whole and firm. All Pigeons enjoy this rice.

Tufts of grass in the aviary provide sufficient green food for the birds ; but in summer we add chicory leaves. A titbit which they much appreciate is a mixture of bread crumbs and shelled peanuts passed through a mincing machine and reduced to about the size of peas.

A supply of salt should not be forgotten ; it may either be mixed with the sand or one of the blocks sold under the name of " rock salt " for Pigeons may be placed in a corner of the food vessel. They are fond of it and it helps to keep them in good health.

Finally, it must not be forgotten that most Doves in their wild state eat worms and caterpillars ; a handful of mealworms or even well-cleaned maggots and their pupæ will always please the birds and be useful when they are rearing young. In fact, I think it would be difficult to succeed in rearing young Bleeding-heart Doves, for instance, without providing maggots and mealworms ; some species of *Geotrygon* too eat a quantity of insects while they are breeding.

Other species readily eat berries and many take to the soft food provided for their companions in captivity.

We shall speak later of the feeding of frugivorous Pigeons when we come to the chapter which deals with them especially. Here we will only remark that they eat chopped up fruit (pears, apples, and bananas), boiled potatoes and carrots cut into dice, insectivorous food, rice, and boiled maize,¹ and bread and milk.

AVIARIES

Poets have greatly extolled the gentleness of Doves ; aviculturists know that on the contrary many have quarrelsome ways, which must be taken into account when it is desired to place them with other species of Doves or even with other birds. French breeders, who about the year 1880 began to breed foreign Doves, which just then were for the first time freely imported, were in the habit of confining each pair in a separate compartment to themselves. Hardly did they dare to add a few Waders, Partridges or Pheasants, birds which, as they seldom left the ground, did not often come in contact with their quarrelsome neighbours. Further experience has shown us that these precautions were unnecessary. Some kinds of Doves—*Lophotes*,² *Lophophaps*, and *Humeralis*, for instance—are very combative and must either be kept by themselves in pairs, or only with large seed-eating birds. They

¹ Most Fruit Pigeons are satisfied with boiled kibbled maize.

² I have had very peaceable pairs of *Lophotes* which even when nesting did not attack other Doves, but they were the exception.

do very well with Pheasants. I keep mine in my Parrot aviaries, where they breed freely, but of course they can only be put with gentle-natured Parrots.

Luckily bad-tempered Doves are not very numerous, and several different species can be kept together safely ; but it is well to be prudent and choose species which are not closely related, for example, not to put two pairs of terrestrial Doves such as Bleeding-hearts and *Geotrygon* together or Peaceful Doves with Diamond Doves. It is safe to keep Necklaced, Peaceful, and Bleeding-hearts together.

It must, however, be admitted that the same species may include birds of very different character ; one pair may be peaceable, the next quarrelsome, and they should be watched for the first few weeks after they have been put with other birds.

We have already said that Pheasants and Pigeons can be kept together ; they will also live with other birds.

Small species such as Diamond Doves, Pigmy Doves, and Masked Doves get on well with Waxbills and Finches, the same diet suiting both, and they never molest their little companions. *Geotrygon* and *Phaps* may be associated with Cardinals and Whydahs or the quieter kinds of insectivorous birds. Fierce species like Troupials, Pies, and Jays would be too dangerous.

I have in one of my aviaries more than twenty pairs of different Doves which breed freely and never quarrel seriously. But it is a large thickly planted enclosure and the birds have plenty of cover in which to retire or escape from enemy pursuit.

Aviaries for Doves are not essentially different from those for small birds, but they must be larger. A range of flights 25 to 30 feet long, 7 feet wide, and 6 to 8 feet high is very suitable for a collection of rare Doves. Three or four pairs could live in each compartment. The open flights should be planted with living trees and the shelters provided with pine boughs, and perches about an inch thick or even a little thicker should be firmly fixed to the sides of the aviary. Boards for shelves should also be nailed against the walls. Doves like to walk along them and squat on them to rest. The floor of the shelter must be covered with a mixture of fine sand and wood ashes, for Doves which never bathe often dust themselves like fowls. The opening from the shelter

into the flight is best placed near the ground. I have noticed that a great many Doves prefer these to others which were higher up. The flights may face south, east, or west if sheltered from wind, which Pigeons cannot endure.

I cannot recommend too strongly that aviaries for Doves should be made out of flexible wire netting (simply twisted) in small mesh ($\frac{1}{2}$ inch). Only this netting will keep out mice—and mice can harm even large birds ; besides which Doves, always very timid, are subject to sudden panics, particularly in the night, when they dash themselves head first against the wire ; if this is flexible there is far less risk of their being killed or wounded.

BREEDING

A great many Doves will wish to breed as soon as the weather is fine, therefore all the aviaries should be thoroughly cleaned out not later than the middle of March, fresh boughs fixed, and the floor of the shelters freshly sanded after washing with very hot water mixed with a disinfectant. Then the nesting boxes should be put up.

If the aviary is planted with shrubs, many Doves will build in them without further trouble, but others prefer baskets or boxes. I use three kinds : large baskets made of willow or rushes such as are sold for domestic Pigeons to nest in ; baskets like those used by Canaries, only larger ; and flat boxes according to the size of the bird which hang from a nail fixed in the walls. The receptacles must be lined with hay ; the Doves will add other material to it.

It often happens that certain kinds, incapable of themselves building a nest, refuse to lay in a basket because they do not like its position. It should then be fixed to the bough on which the bird is vainly trying to build, she will invariably take to it. The best nesting materials to provide are small twigs, little bits of heather, short straws, long pine needles, and some coarse hay. The hen builds the nest out of the materials which the cock brings.

To prevent egg-binding give them old mortar (old plaster), roughly crushed egg shell, and above all granulated oyster shell, which is sold for poultry. Incubation varies according to the species. No extra food is required while the young are being reared, as they are fed by a

secretion from the crops of their parents. But it is as well to increase the bread and milk and mealworms given to the breeding birds.

Young Doves often leave the nest before they can fly well. Then they squat on the ground and must not be allowed to remain on damp soil. The best way is to keep them in the shelter on some dry litter. After two or three days they are usually able to perch and fly about. It happens occasionally that the parent birds are too ready to go to nest again and abandon their young prematurely, in which case they are often lost. To prevent this the new nest and eggs may be taken away, or the cock and hen separated, leaving one parent with the nestlings. Or an attempt may be made to rear the young birds by hand. To do this "take the bird's beak between your lips, when it will instinctively expect food, and push into the open beak softened seed mixed with bread crumbs".¹ I have known people who were very clever at it.

Some Doves will refuse to rear their young in an aviary which they dislike. Others, wanting to go to nest again, desert their eggs after incubating them for a few days. These eggs should be put under other Doves, good sitters, who will rear them. The Barbary Dove is a kind mother and looks well after her nurselings. The white variety is preferred by some amateurs for this purpose. I have successfully tried *Lophotes* as foster-mothers for *Phaps* and Diamond Doves have reared Pigmy and Masked Doves for me. Another experienced breeder advises the employment as foster-parents of hybrids between the Barbary Dove and Common Pigeon. These are larger and feed the young longer, which is a decided advantage, for it often happens that given species which mature slowly the Barbary Doves abandon them before they can feed themselves. Then they must be artificially fed, a tiresome business.

The Marquis de Brisay gives the following advice on the installation of foster Doves²: "The foster Doves should be kept in pigeon holes arranged like a bookcase with two tiers, each compartment being about a metre square. It is a sort of cupboard two metres high by two wide, one metre deep and divided by cross partitions into four separate

¹ Marquis de Brisay, *Foreign Doves*, p. 114.

² *Ibid.*, p. 69.

compartments. All the sides of these boxes are of wood ; the front is wired and the interior communicates with the outside by a sliding door on one side of each compartment." This house is kept from wind, rain, and cold in a warm light room which can be thoroughly aired. One pair of foster-parents is placed in each division with a basket filled with hay. As soon as they have laid, those eggs which they are intended to hatch are substituted for their own. They may even be given half-grown nestlings which their own parents have forsaken. The foster-parents must be used to a mixture of seeds, millet, maize, and hemp, and to bread and milk, chopped hard-boiled eggs, insects, mealworms, and maggots. "It is by these methods that the best results are obtained," writes the Marquis de Brisay.

Some breeders, particularly our late colleague Monsieur A. Delaurier, have very successfully reared rare Doves, especially the Bleeding Hearts, by the use of well-selected and well-fed foster-mothers.

The attempt has been made on several occasions to keep various foreign birds at liberty in gardens. Doves would appear to be particularly well suited for this purpose ; they are strong, many can stand the vagaries of our climate quite safely, and most of them do not wander far from where they were turned out.

The best time to let them out is spring, in a garden planted with evergreen trees. Conifers provide excellent shelter from rain, snow, and tempest. The Doves which are to be set free should be confined in a small flight in the middle of the garden where they will be turned loose. The cocks should be let out first, and when they have got used to their surroundings, the hens. They must of course be fed every day, or they will either die of hunger or fly away.

Their enemies are cats and Owls, against whom relentless war must be waged.

I have the following Doves at liberty : Barbary, Senegal, Gold-necked (*Z. auriculata*), and *Lophotes*. These last are extremely decorative, but the cocks are very quarrelsome in the breeding season, which is practically all the year round, and all the pairs emigrated one after another, except the worst fighters, which settled down well and reared their young when they had rid themselves of their rivals. The Necklaced Doves flew far and wide and often were not seen for weeks ;

they were finally lost in the woods. Senegal and Barbary Doves made no attempt to migrate.

For further details on this interesting form of aviculture I refer my readers to Lord Tavistock's article " Foreign Doves at Liberty " which appeared in the February AVICULTURAL MAGAZINE for 1914, and an article in which M. Pierre-Amadée-Pichot has condensed Lord Tavistock's paper (*Bulletin of the Société d'Acclimatation*, 1915, pp. 33 to 39).

DISEASES ¹

The diseases of aviary birds are still little understood, and in many cases the remedies are unknown. Doves are fortunately healthy creatures and, provided they are well cared for, little subject to serious illness. Diarrhœa, which is usually caused by long-continued damp, can generally be cured by keeping the affected bird dry and warm and removing all laxative food. A cold should be dealt with in the same way; a few drops of glycerine mixed with the drinking water are good medicine, and a little syrup of iron phosphate, which is an excellent tonic. Constipation is not common and can be treated by giving tepid olive oil. Miss Rosie Alderson also advises drops of oil introduced into the vent in cases of egg-binding, which, however, do not often occur among Doves.

Fits are rare; they are usually caused by a blow, or by a sudden fright. The sufferer should be kept cool, sprinkled with cold water, and made to drink a little good brandy and water. Afterwards it should have Vichy water for some days. I think sunstroke is often mistaken for apoplectic fits. It is advisable to shade aviaries exposed to full sun by laying leafy branches on the netting during the heat of the day. Pneumonia, which occurs sometimes after violent change of temperature, is nearly always incurable. The worst disease which attacks Pigeons is diphtheria. It is the more to be dreaded because it is most contagious and can be communicated to every Pigeon throughout the aviary. It shows itself in different ways, but is always accompanied by membranes in the throat, which are first white then yellow; the

¹ For this I have consulted Miss Rosie Alderson's excellent book *Foreign Doves and Pigeons*, sometimes merely quoting it.

bird has more and more difficulty in swallowing as the disease progresses. The only remedy against Pigeon diphtheria is injection of a special serum (Vaccin Verge's & Pouissat prepared by the Biological Institute of Merieux, 17 rue Bourgelet, Lyons). The amount to be injected depends on the size of the bird. I have never had to use this vaccine on my foreign Pigeons, but numerous breeders of domestic and fancy Pigeons have successfully used it.

THE CALL OF THE WILD

By JAMES B. HOUSDEN

(Continued from Vol. VI, p. 211)

Our first journey into the wilds of Texas was a very delightful one. Each season of the year seems to have its own individual charm in Southern Texas, but I think perhaps it is at its best on a brilliant sunny day in April, when all nature is pulsating with life, after a tropical storm, birds everywhere revelling in the joy of life, which a day such as I have in mind must give to all nature.

With my nephew I motored nearly three thousand miles studying birds and bird life in Texas; many times stalking birds through a dense jungle and tangle of undergrowth into the heart of the forest.

In spite of discomforts and sometimes risks, recollections of keenest pleasure and excitement are left in one's memory of those days in the forest, all the picturesque and ever-changing scenes once experienced can never be forgotten, especially searching for birds on their nests on the banks of several rivers we visited.

At other places where the soil is poorest the tall wild cactus threw its green-ribbed shafts into the air; Woodpeckers, perhaps invisible to us, were making a hoarse chatter in the under woods. Humming Birds whirring about the blossoms close to our heads might easily have been caught with a hand net; one of the most lovely is the Emerald-green, with long tail feathers.

Most of our trips were in Bexar County, South Texas (pronounced Bear County), about nine hundred square miles in extent.

Two hundred and thirty species of birds, either residents, summer residents, migrants, and winter residents are found. The American Mocking-bird is adopted as the state-bird of Texas by the 40th Legislature.

I spent one month on the Burro Mountains Ranch, North Mexico (nearly a thousand miles from South Texas). I found there a great many other species of birds.

One of our first trips near some large lakes was a very interesting one. After we had journeyed many miles we saw three flocks of the Scissors-tailed Flycatcher chasing mosquitos over a corner of one of the lakes, darting about they looked like flocks of long-tailed Swallows. Close by were a number of Texan Bitterns, which we watched from our car catching small frogs; we saw many American Coots and Kill-deer Plovers, Cinnamon Teal, King Rails, Yellow-billed Cuckoos, Logger-head Shrikes, and several kinds of Song Sparrows.

A flock of Red-wing Blackbirds flew over from the distant lake, taking up an observation post on some low trees and rushes: happy, chattering little birds these are, especially the cock birds, with their lovely glossy black plumage and bright red patch on the wings. They were quite tame.

I found for the first time near these lakes the Grey-tailed Cardinal (this bird was figured in a coloured plate in the *AVICULTURAL MAGAZINE*, December, 1924, as "Red Cardinals, two freak specimens"); Mr. Chapman has had these birds since from Mexico, but did not know their name; I was able to watch them, found their nest and eggs were quite different from those of the Red Cardinal (Virginian Nightingale).

One of the most interesting studies of wild life was a Bat roost which we found late in the day, a small wooden erection something like a windmill at home without sails, or the upper part of an old church steeple standing on wooden piles to keep cats, snakes, and other small animals from climbing into the strange looking house by the side of the lake; we arrived just before sunset and just as we got near these small Bats began to fly out. They formed one long column about half a mile long and about twenty deep, it looked very remarkable with a deep blue southern sky for a background. There must have been many thousands of Bats, they were half an hour leaving the roost; one or

two large Hawks were taking toll as they flew out. On another day I saw them when a strong wind was blowing. The Bats flew out and round in circles something like Rooks at home on a windy day.

I could not find out whether these small Bats migrate or hibernate in winter. In this house myriads of Bats rear their young and seek refuge during the day. This species is weak and harmless and man's benefactor, their chief diet consisting of mosquitoes and other obnoxious insects.

It is said the city of San Antonio gives the Bats free lodgings (for the good they do) and so provided this Bat house from whose slat-shaded windows thousands of Bats flutter at dusk on mosquito hunts. At dawn they fly back (to sleep by day in their dark retreat).

We were often out a long way from home after sunset, then strange sounds at times reached us. The cry of the Coyote (Kiote as they are called here) and its larger relative the timber wolf, their distant cries mingle with the notes, and resound with the cries of the night birds, especially one, the large Western Horned Owl, of which Barry Cornwell writes :—

So when the night falls and the dogs do howl,
Sing ho ! for the reign of the Horned Owl,
We know not alway who are Kings by day,
But the King of the night is the bold Brown Owl.

On another occasion near some water we saw a beautiful pure White Woodpecker with red head searching for insects on a large branch of a dead tree.

(To be continued.)

AVICULTURAL NOTES

By THE EDITOR

The Messrs. Webb returned home from a collecting trip to Portuguese East Africa on Christmas Eve, and brought some very good birds, of which the following appear to be new to aviculture :—

The Little Bee-eater, *Melittophagus meridionalis*, of which there was a pair, is a very beautiful species of the square-tailed group, and under 6½ inches in length.

The White-browed Tinker (*Barbatula bilineata*), of which there was one, is a midget Barbet.

The Trumpeter Hornbill (*Bycanistes buccinator*) is a small black and white species, with a large cylindrical casque extending to the end of the bill.

The Spot-headed Weaver (*Sycobrotus stictifrons*), of which there were some half-dozen species, is a forest-loving species, which appears to be entirely insectivorous. Above it is dark brown, the under surface being golden-yellow; the feathers of the crown and throat tipped with grey. Both sexes are alike in plumage. It is said to be never met with in flocks, but in single pairs in the thick forest.

The collection contained a number of other rarities, among which were some Green-necked Touracous (*Gallirex chlorochlamys*) and a number of Jameson's and Peters' Firefinches. The last mentioned is certainly one of the most lovely of the ornamental Finches, and altogether a most attractive bird, but it is undoubtedly delicate. It appears to be a frequenter of somewhat thick scrub, and rarely comes much into the open, but skulks in the shade somewhat after the manner of our Hedgesparrow. It does well in a small wooden box-cage, but if turned into a large open aviary without adequate shelter, will probably succumb very quickly. Hence I would advise those who purchase these beautiful rarities to keep them for the remainder of the winter and well into the spring in small wooden box-cages, with plenty of Indian millet, and when they are finally put into an aviary be sure that the weather is warm and settled and that there is ample covert.

Mr. Ezra has sent me the body of a cock Peters' Spotted Firefinch that died in his aviary after a residence there of three years. It is an interesting specimen from the fact that it has become very much darker than it should be normally and the white spots have almost completely disappeared. It would be interesting to hear whether other aviculturists have noticed a tendency towards melanism in this species under captive conditions.

In a recent issue of *Cage Birds* Dr. Amsler recommends sprouting wheat as a food for Budgerigars, and there is no doubt that it is also valuable for many other birds. Sprouted Oats are probably quite as good, and I am not sure that sprouted canary or millet seed would not be better than any. Oats in a sprouted condition have been used by poultry-keepers for many years past, and are looked upon as a most valuable article of diet at a time when young natural green-food is scarce.

The usual method of preparation is to place the seed in shallow wooden boxes, which can be placed one above the other provided fillets of wood are inserted between to allow of a free circulation of air. The boxes being placed in a moderately warm shed, are thoroughly watered with a watering-can, and then kept moist by sprinkling with water until growth has commenced, and when the green shoots are about an inch long the seed, which has become rooted into a solid mass, can be taken out of its box and fed to the birds.

Referring to Lord Tavistock's letter under the heading of "The Crystal Palace Show", on page 20, the General Manager of the Crystal Palace has written to say that in the forthcoming exhibition on 7th, 8th, and 9th February the conditions both as to heating and lighting of the hall in which the foreign birds will be staged will be greatly improved.

When one remembers that this show was held, years ago, in the open central part of the Palace, which was certainly extremely draughty, one appreciates the great improvement that has been made in holding it in the Concert Hall, where special arrangements are made for warming. The lighting has not always been perfect, but this, it appears, is to be improved, I am sure we should all be very sorry to see the Palace Show discontinued, and no one has yet suggested a better place.

REVIEW

LORD TAVISTOCK'S BOOK ON PARROTS¹

We have all been looking forward to the appearance of Lord Tavistock's promised book on Parrots, and now that it has appeared we may say at once that none will be disappointed in it. Excluding the index, which is quite a good one, it contains 288 crown quarto pages of very clear type, and deals with all of the Parrots (including, of course, the Parrakeets) that have been or are likely to be imported alive.

It is divided into three parts: Part I, containing a chapter on "Cages and Aviaries" and two chapters on "Aviary Management"; Part II deals with "Diseases and their treatment"; and Part III contains twenty-one chapters dealing with the various groups, such as "African and New Zealand Parrots", "The Smaller South American Parrots", "Grass Parrakeets and their Allies", and so on. Considerable changes have been made by ornithologists in the Latin names of birds in recent years, owing to the desire for strict priority in nomenclature and the more complete grouping of the natural genera and families, and Lord Tavistock has followed the latest approved nomenclature, so that many of the well-known names have disappeared and it is difficult to recognize some of the scientific names. We could have wished that Lord Tavistock had included the well-known names as synonyms, so that we could have recognized, for instance, *Forpus vividus vividus* as our old friend, *Psittacula passerina*, the Blue-winged Parrotlet, or *Psittacula torquata* as the well-known *Palæornis torquata*, the Indian Ringneck. The genus *Conurus* has now been split into three general, *Aratinga*, *Eupsittula*, and *Thectocercus*, and for those who are not familiar with the latest ornithological literature it is difficult to recognize the species under their new names without any reference being given to those we have all learnt to know. And it is a pity that the authorities for the names are not given. To the majority of readers these are unimportant details, but in a book, otherwise so excellent, their omission is to be regretted.

¹ *Parrots and Parrot-like Birds in Aviculture*. By the Marquess of Tavistock, with 8 plates in colour by E. J. Boosey. London: F. V. White & Co., Link House, Greville Street, E.C.1. 15s. net.

In the chapter on Cages and Aviaries, the author deals very fully with his subject and gives much valuable advice. He rightly condemns the usual type of Parrot-cage with a senseless swing which knocks the bird's head as it sits on the perch and a grating below which prevents it from resting its feet on a flat surface and collects dirt.

With regard to Aviaries, Lord Tavistock has invented the movable aviary for Parrakeets, which has already been described in the *AVICULTURAL MAGAZINE*. The size is 24 feet by 8 feet by 8 feet, and it is rigidly built and wired with $\frac{1}{2}$ in. mesh wire-netting over the bottom as well as the top and sides, the shelter being 2 ft. 6 in. deep. Such an aviary can be moved on rollers by four men without unduly disturbing the birds, and providing there is plenty of room and the surface of the ground perfectly flat, this is probably about as good an aviary as can be devised for Parrakeets. But with the majority of aviculturists space is a consideration and a movable aviary is out of the question; and in such cases the author advises that the whole of the surface of the ground should be of brick or concrete. Such an aviary is doubtless more hygienic than one in which the outer portion is of natural soil, with growing turf, and there is much to be said for it, but surely the removal of 6 inches of the top soil each year, and replacing with new soil and returfing should be proof against disease germs. Most aviculturists wish to keep a few other birds with their Parrakeets, and for ground-breeding species such, for instance, as Quails, growing grass is essential. However, Lord Tavistock has had more experience in keeping and breeding Parrakeets in aviaries than any of us, and the aviaries he recommends are doubtless the best type that can be devised for these birds, if these alone are to be kept.

The chapter on Diseases and their treatment, which occupies no less than fourteen pages, is a very valuable one to the Parrot-keeper. "It is no exaggeration to say," writes the author, "that great heat is the best remedy for 99 per cent of the curable diseases from which properly managed Parrots are liable to suffer. No owner of a large and valuable collection of foreign birds should be without a hospital where the temperature can be maintained at an even 85 degrees Fahrenheit, whatever outside conditions may be. It will pay for its cost of erection and maintenance a hundred times over."

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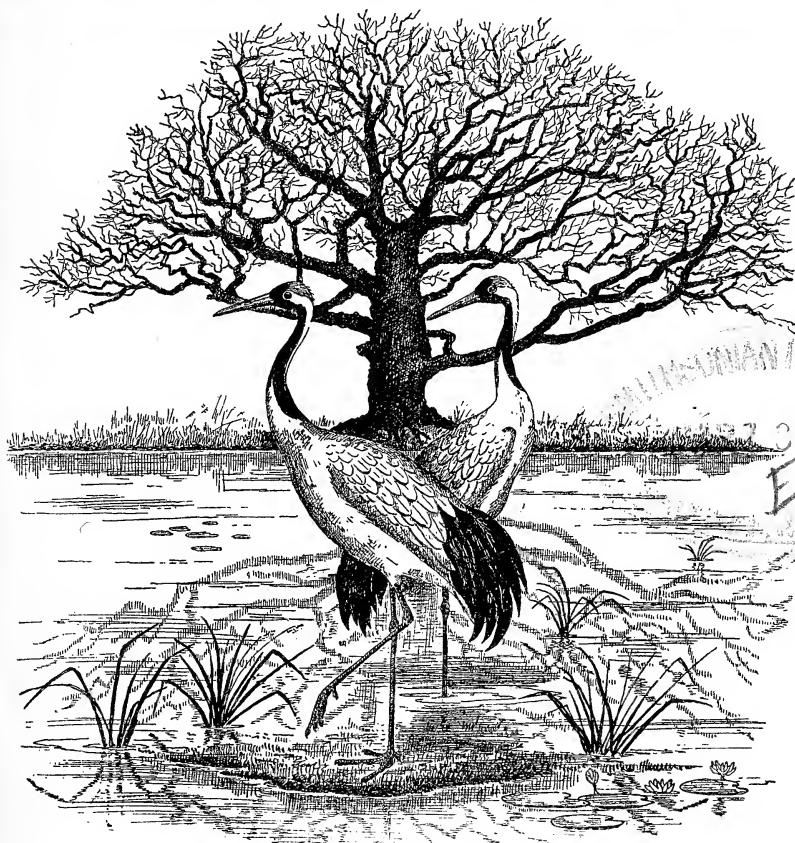
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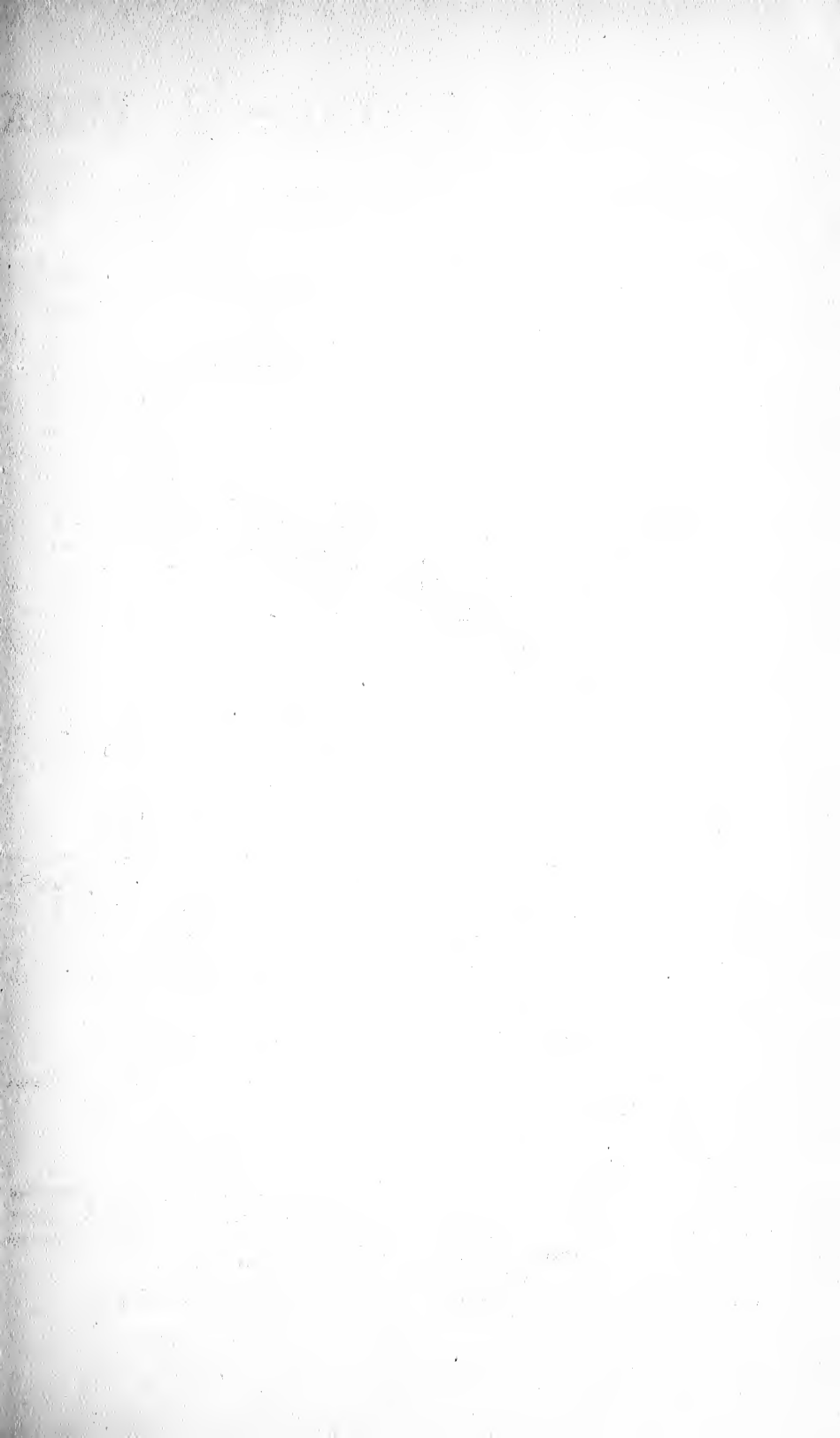
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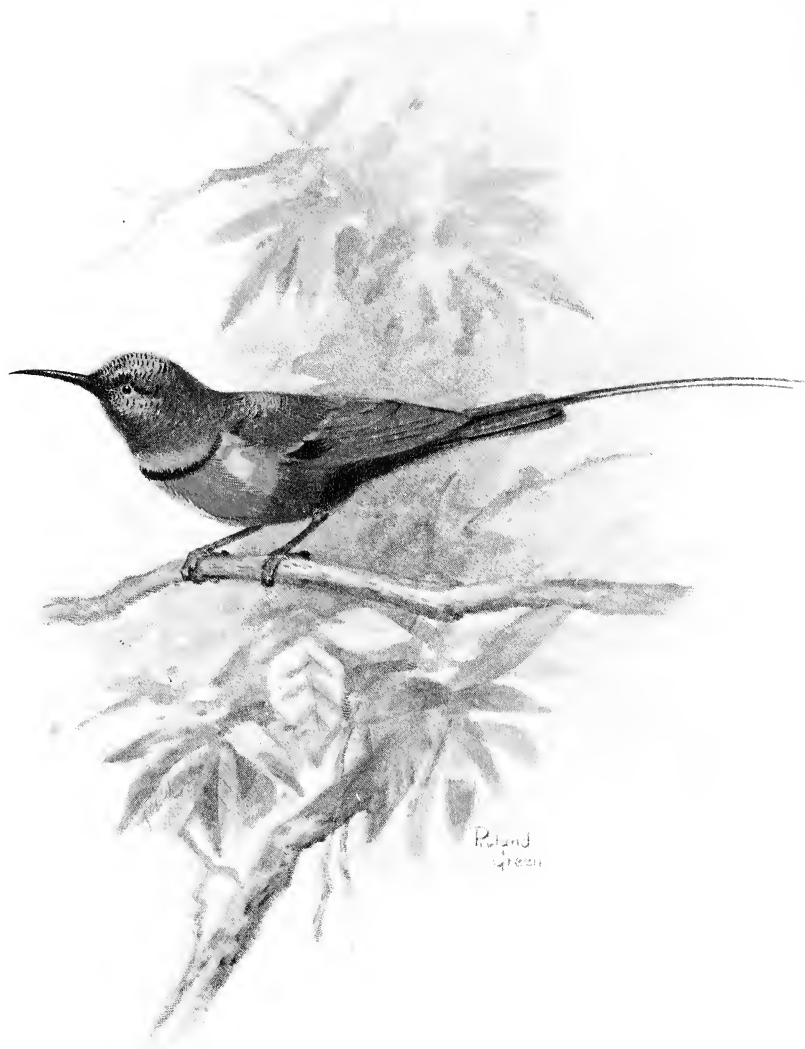
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MARCH, 1929.

THE BEAUTIFUL SUNBIRD (*NECTARINIA PULCHELLA*)

By Miss ETHEL F. CHAWNER

Several examples of this lovely little Sunbird were personally brought over from the Soudan last July for Mr. J. S. Lewis by a friend. They bore the long journey remarkably well, thanks to the ingenious and unremitting care bestowed on them, and only two succumbed shortly after their arrival in England. The others quickly settled down and have so far come through the winter.

Both sexes are represented; the hen, a quietly coloured grey mite, is not remarkable in any way, but the cock in full plumage, with the two long tail feathers unbroken, is a gorgeous creature, particularly when a gleam of sun lights up his iridescent colouring.

It seemed almost impossible to catch them until Mr. and Mrs. Nottage hit upon the clever idea of watching them go to roost. Once settled down for the night they could be picked off their perch by hand. They were given honey and milk mixed and a particular kind of spider of which they were very fond. Another ingenious idea was giving them their food in brightly coloured vessels as much as possible like the flowers on the shrubs which they frequent in the wild state.

These Sunbirds are exceedingly sensitive to cold. They are kept in a temperature of between 65 and 70°, but should it drop below 65° they look miserable and droop. When they arrived spiders and tiny flies were plentiful, and a variety of both were offered, but they did not care about them nor for newly-hatched Stick insects, which most birds consider a delicacy. The usual very liquid mixture seems to satisfy their requirements, and they certainly thrive on it.

Like the rest of their kind they are very quarrelsome, and must be caged singly.

THE SOUTHERN BIFASCIATED SUNBIRD (*CINNYRIS MARIQUENSIS*)

By SYDNEY PORTER

One of Nature's choicest jewels, this tiny creature is clad in a raiment which has no fixed colour, in some lights it appears a shining golden green. It appears like this in my aviary where the light falls upon it from above but when in a cage it seems to be a different bird altogether, the green changes to a wonderful burnished bronze. But it is when the bird is being sprayed or has just commenced its bath that the colours are truly marvellous, iridescent pink, blue, green, gold, purple, in fact every known colour seems to gleam on the plumage of this tiny jewel.

Sunbirds are charming pets, but they have drawbacks: they are rare and consequently expensive to buy, and they are rather delicate, especially in regard to their feet, but a certain cure for bad feet is to take away all artificial perches and substitute in their place growing trees in pots or tubs.

I find that a speck of "Liebig's Extract of Meat," about the size of a sweet-pea seed, diluted in their food is very beneficial, especially at the moult, and for those species which will not take insects.

When Sunbirds were first imported some years ago this species was exceedingly rare, but now there seems to be a number of specimens in this country.

Sunbirds have always been my favourites, both in a state of freedom and in captivity. I was fortunate several years ago in making for a

time my home upon a mountain inhabited by no less than eight kinds of Sunbirds, some of which were extremely rare, and the sight of six or more different species together flitting about a patch of honey-bearing flowers, their resplendent plumage flashing and glistening in the sunlight, made a picture which will never fade from my memory.

Many species are very shy, especially the dark kinds such as the "Amethyst", "Kirk's", etc., but most of the more brilliant species are very familiar and allow one to approach within a yard or two of them.

The magnificent Scarlet-chested is my favourite, as I once hand-reared one from the time it was a day or two old, and it would have reached maturity had not a pet Crow killed it.

The subject of the present article is not, unfortunately, endowed with much intelligence, but this failing is made up for by its sweet song and lovely plumage. I found this species rare in the wild state, though no doubt it is common in certain districts. I believe Andersson found it fairly common in Damaraland in South-East Africa, and I only once saw it in a large mimosa-tree by a river. It was exceedingly shy and appeared to be passing from one district to another. In captivity the beautiful red on the breast fades to a copper colour, but the colour can be retained if the bird is fed upon small winged insects such as green fly and gnats; the specimen which I possess will not touch these unless it catches them in the air. Gnats can easily be caught in a large butterfly net on mild winter days as they dance in swarms under the trees.

When at liberty I have noticed that Sunbirds are very fond of spiders, and I have seen them hovering like Humming-birds under the eaves of native huts and houses in search of these delicacies; but some species will not eat them in captivity.

The male which I now possess is so tame that one can pick him up in the hand, but recently when sent to a local bird show (for the first and last time) he was so disturbed that I had to take him and place his cage in a dark corner most of the time.

SUNBIRDS AND TANAGERS IN OUTDOOR
AVIARIES

By the MARQUESS OF TAVISTOCK

For the first few years my 24 ft. by 8 ft. by 8 ft. moveable aviaries were entirely used for Parrakeets. About eighteen months ago, however, I had occasion to buy some newly imported *Calliste* and *Euphonia* Tanagers and keep them some months for a friend, and I was agreeably surprised to find how well this type of aviary appeared to suit them. Encouraged by my initial success I decided to experiment further, and invested in three Superb Tanagers, two cocks and a hen. Some time previously a fellow member had also given me three Purple Sunbirds, likewise two cocks and a hen. All these birds have been in the aviaries since the spring or summer, and up to the time of writing (16th December) have not had a day's illness. The aviary shelters, of which the birds make constant use, are heated by Pollard's French petrol heaters (size 50), which keep the temperature from falling much below 50° Fahrenheit even in the severest weather. It is, of course, early days yet to be too confident, as the autumn was exceptionally prolonged and genial, and the worst of the winter is still before us. However, we have already experienced hard frost, heavy rain and periods of dull, chilly gloom, and so far the disaster which my more experienced friends told me would certainly attend an attempt to keep *Calliste* Tanagers at so low a temperature has not materialized. Although the birds keep almost entirely in the shelter during really hard weather, they pay frequent visits to the flight when the thermometer is but a very few degrees above freezing-point, and fly and hop about in the best of spirits. They are fed on pear and Sunbird mixture and do not get any oranges or bananas, although I am not sure that the latter fruit would do them any harm. They like Mealworms but insectile mixture they hardly touch and they catch a good many insects for themselves and do not despise earthworms. The bird-book theory that Tanagers prefer over-ripe fruit appears to be quite a delusion. My birds have no more use for sleepy pears than I have myself, and will only eat them when starved into doing so.

My own theory is that the chief need of *Calliste* Tanagers is not a very high temperature and complete protection from the inclemency of the weather, but rich feeding combined with unlimited exercise and a chance of retreating to a shelter where they are safe from actual frost, wind and wet. Tanagers are by nature extremely active birds, and if the poor creatures are sluggish in cages it is because they are depressed by close confinement. When presented with no more interesting form of exercise than a jump from one perch to an exactly similar one, they may say, like Queen Victoria, "We are not amused," and sit in one position till they die of surfeit. Sunbirds, also, both Indian and African, appear, when in good condition, to be by no means unduly sensitive to cold. Indeed, if it were possible to keep their food from freezing, I believe some species would prove to be among the hardiest of the smaller softbills. Two days ago one of my cock Purple Sunbirds escaped from the aviary during dull and very chilly weather, the thermometer being hardly above freezing-point. He only got a few sips of food that afternoon, as we were very anxious to entice him, by hunger, into a cage before night fell. In this we were unsuccessful and, the sky clearing at dusk, there were some sixteen degrees of frost during the long December night. Next morning the truant again appeared and was caught, and after a feed was not a penny the worse for his exposure. He was in heavy moult at the time, and is, I should say, rather an aged bird past the prime of life.

It is a great pity that Sunbirds have such horrible tempers. Two cocks invariably fight to the death, nor will a cock even condescend to behave decently to his mate throughout the year. I find Purple Sunbirds all right with their hens when in colour, when moulting into eclipse, and when in eclipse, provided, of course, that they have plenty of room: but when they start to moult back into breeding plumage it is necessary to remove the hens to save their lives. Sunbirds are also pretty disagreeable to birds of other orders, bullying them when on the wing, even when they dare not attack them at rest. Were it not for this unfortunate failing they would be among the most charming of aviary inmates, interesting, beautiful, long-lived, and intelligent. My second cock Purple Sunbird is full of character. He always roosts sensibly in the aviary shelter, but nothing will induce him to enter it

before he is ready for bed. His owner or aviary attendant may have some urgent reason for wanting to shut the birds up a little earlier than usual, but this makes no difference to him and neither persuasion nor force will induce him to enter the shelter a moment before he considers the correct time has arrived. Although normally not tame and interested in humanity he is well aware that we are responsible for the commissariat department. Occasionally, through some accident, the food supply has run out, a serious matter for a Sunbird, which is speedily reduced to exhaustion if deprived of liquid nourishment; on such occasions the little bird has always called my attention to the trouble by departing from his usual behaviour and flying right up to me as soon as I appear within sight, looking anxiously into my face in a way which expresses his trouble as plainly as words could do.¹

DEATH OF A FAMOUS RING-NECKED PARRAKEET

By ALFRED EZRA, O.B.E.

I feel sure members who have seen my very clever performing Parrakeet will be sorry to hear of his death. While sitting on the finger of my housemaid, who has always looked after him, he had a stroke and died in a couple of minutes, evidently from advanced age. I bought him in Calcutta nineteen years ago as an adult bird, so he must have been at least twenty-five years old, if not more. For the last five years, although he moulted out in perfect condition each year, I noticed that his flight feathers were getting yellow, otherwise he looked as sleek as ever.

In all my experience I have never come across such a clever or such a tame bird. He would go on to anybody's finger without ever trying to bite, but the moment he saw me, he would fly back to me. He was devoted to me, and, needless to say, I shall miss him most frightfully. I bought him from an Indian who had taught him all his tricks and for

¹ The above-mentioned birds are still thriving on February 15th in spite of the intense cold.—T.

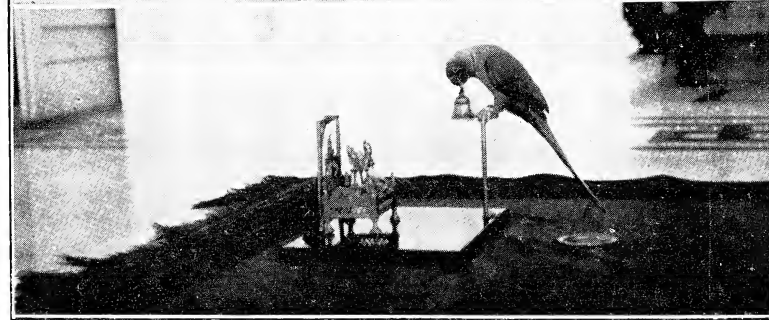
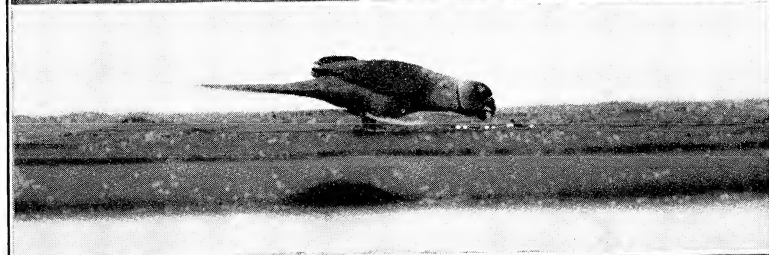
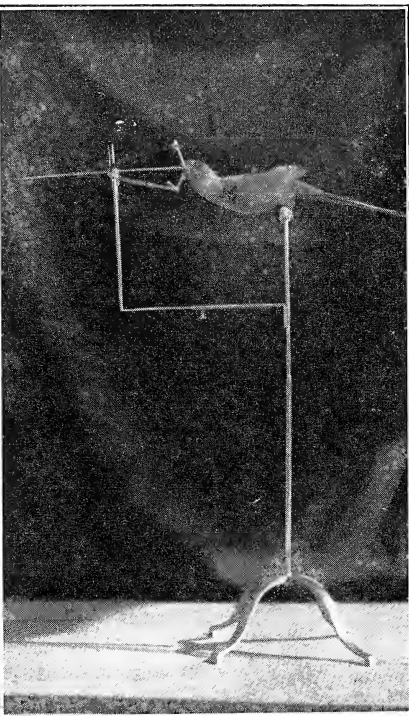
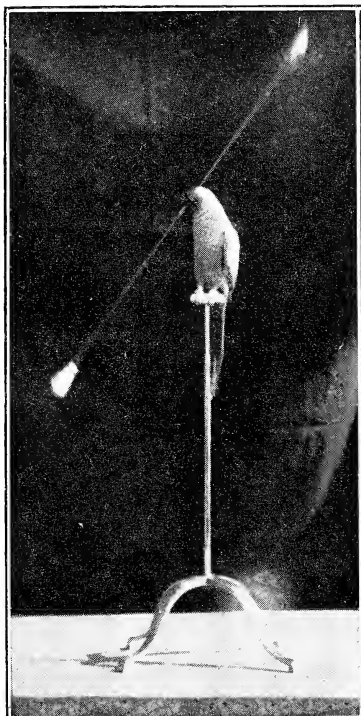


FIG. 1.—TWIRLING THE LIGHTED TORCH.

FIG. 2.—USING A BOW AND ARROW.

FIG. 3.—THREADING BEADS.

FIG. 4.—RINGING THE PRAYER BELL.

whom he used to perform in the presence of huge crowds for money. His best tricks were :—

- (1) Twirling a torch, lighted at both ends (Fig. 1).
- (2) Drawing water in a small wooden bucket.
- (3) Using a bow and arrow (Fig. 2).
- (4) Picking out a particular card or coin I asked for from half a dozen others, and bringing it up to me.
- (5) Threading very tiny beads (Fig. 3).
- (6) Retrieving like a dog anything I threw to the other end of the room.
- (7) Loading and firing a cannon, which went off with a terrific report.
- (8) He worshipped an idol by offering it water, flowers, and money and then ringing the prayer-bell (Fig. 4).

I took photos of him while doing some of his tricks, and I am sure they will be interesting to others. I may say that the most wonderful and difficult trick of all was threading the beads (Fig. 3). A few glass beads were placed on the table and a piece of thread with a knot at one end, and a short blunt needle at the other end was given to him. He did the threading with his beak and tongue.

What was most extraordinary about the bird was that he never forgot his tricks. Once after a lapse of a whole year he did them perfectly, and only ten days ago he performed for some children. Clever as he was with his tricks, he never talked at all. He was kept and fed like any other Parrot, and only kindness and coaxing with a grape or a nut used to make him do his tricks quickly. Once, when in a hurry, I was rather impatient with him, with the result that he refused to do anything, and flew away each time I brought him on to the table.

I suppose twenty-five years is a good life for a Ring-necked Parrakeet. I am glad he died suddenly without suffering, but feel sure such a perfect bird will never again be seen.

AVICULTURE IN AMERICA

By A. A. PRESTWICH

Members of the Avicultural Society read occasionally in the Magazine of the doings of some of the more important French aviculturists—Mde. E. Lécallier, Prince Paul Murat, MM. A. Decoux, J. Delacour, P. Jabouille, M. Legendre, E. Pannetier, E. Plocq, and others. But rarely does anything appear concerning our confraternity across the Atlantic. Probably few are aware even that in America there is a society with objects similar to our own, and which is styled “The Avicultural Society of America”. Only recently founded, the members number some 130 ; what they lack in numbers, however, they make up in enthusiasm. Many are supporters of our Society, and not only is Mr. W. H. Browning—who joined the Avicultural Society in 1906—the President, but of the four Vice-Presidents three—Mr. C. T. Metzger, Mr. Kenneth Woodward, and Dr. Leon Patrick—are members. The Treasurer, Mr. E. W. C. Arnold, also belongs to both Societies. It is to be hoped that the fourth Vice-President, Mr. George Washington,¹ and the Secretary and Editor, Mr. B. F. Lippold, will also, in due course, join our Society. Hence a few notes on the interests of some of the foremost members may not be out of place. For much of the following I am indebted to Mr. C. T. Metzger, who, in addition to being a Vice-President is the Corresponding Secretary.

Mr. Jesse H. Arnold, of Long Beach, California, has been interested in aviculture for many years, and has a large and varied collection. He is one of the select band of enthusiasts attempting to preserve from extinction some of the fast disappearing species of Australian Parrakeets.

Mr. T. H. Barry, of Los Angeles, specializes in the breeding of the rarer exotic Finches, and he is probably the first aviculturist in the U.S.A. to breed all three imported species of the Parrot Finch. Lately he has become interested in the various species of foreign Quail.

¹ Since the above was written Mr. Washington has resigned owing to continued absence abroad, and Mr. Dwight Winter—one of our members—has been elected to fill the vacancy.—A. A. P.

The President, Mr. W. H. Browning, of Rye, New York, has kept very many varieties of birds during the past twenty years. He is greatly handicapped in his breeding attempts by the severe winter weather. His interests are centred on the Parrot tribe, and he has bred many of the commoner Parrakeets and Leadbeater's Cockatoo. Many Finches, Cardinals, Pheasants, and species of Waterfowl are also kept. He possesses one of the best libraries of ornithological works in America.

Mr. George H. Corsan, of Michigan, is the manager of the large bird sanctuary recently established by Mr. W. K. Kellogg. At present he is specializing in aquatic and game birds, both foreign and native. His name is well-known to readers of publications devoted to aviculture both in America and abroad.

Mr. Claude P. Dorman, of Bakersfield, California, has for many years confined his efforts to the smaller tropical and sub-tropical species. Lately he has become interested in some of the Australian Parrakeets, and African Lovebirds, and is probably the first to breed Abyssinian Lovebirds in America.

Mr. J. C. Edwards, of Los Angeles, is undoubtedly the largest breeder of Budgerigars in the U.S.A. In 1928 he bred, and disposed of, some 15,000 young, including many Blues, Blue-bred, Cobalts, Mauves, and other colour varieties. His aviaries for breeding are large and spacious, and he is now arranging for additional ones in the spring. While the breeding of "Buddies,"¹ is a business with Mr. Edwards, his hobby is breeding Finches and Lovebirds.

Mr. James Ewins, of Pasadena, is a lover of all foreign birds. At present his interests seem attracted by the various Lovebirds and Blue "Buddies".

Mr. William Henry, of Chicago, has been a breeder for more than forty years. Although without any birds of his own, his interest never flags, and as he is in charge of the bird-house at the Zoo he has many opportunities to study species that are unobtainable by the majority of aviculturists. With the exception of aquatic and game-birds, breeding is not attempted, owing to lack of space.

Mr. W. K. Kellogg, of Battle Creek, Michigan, is best known as a

¹ A preferable abbreviation to "Budgie".

cereal manufacturer. However his bird sanctuary of some 700 acres of woodland, marsh, lakes, and green fields devoted to the propagation of both native and foreign Waterfowl and Game-birds, is rapidly becoming one of the features of the Middle West. Here already have been assembled many pairs of rare and beautiful birds, and the present stock is constantly being added to as specimens become available. Many buildings and pens for housing the more delicate species during the winter months have been provided, and many more will be erected as the necessity arises.

Mr. C. T. Metzger, of Chicago, has been a breeder and lover of birds for nearly fifty years. There are but few species that reach the American market that he has not, at some time or other, attempted to breed, but unfortunately not always with success. At present, forced by circumstances to live in a large city where space is at a premium, he is compelled to confine his activities to the keeping of a few of the smaller and commoner species.

Mr. Karl Plath, of Chicago, is artist, student, aviculturist, and ornithologist combined. He has undoubtedly the best arranged and most beautiful outdoor aviary in the Middle West; as well as an indoor bird-room where he houses the more delicate species during the severe winter months, when the temperature sometimes drops to 12 degrees below zero. Mr. Plath, being an artist, is devoting his efforts to securing and maintaining in perfect health some of the rarer and most beautiful birds. The majority of his paintings are made from living examples in his collection. While his breeding experiments have been confined to but a few species, his success has been remarkable. His paintings and sketches of birds have been exhibited in all parts of America, and reproductions have appeared in many publications all over the world.

Dr. Leon Patrick, of Orange, California, is one of those fortunate aviculturists who reside in "The Land of Perpetual Sunshine". He says he has been an aviculturist from the day he pilfered a Quails' nest when a kid and tried to hatch the eggs under a Duck, or was it a Goose? Dr. Patrick was the first American to make a serious attempt to save some of the vanishing species of Australian Parrakeets. And it is mainly through his untiring efforts that others have become interested, and what was considered a doubtful experiment three years ago now

give promises of success. Last year he successfully bred and brought to maturity one of the most difficult species—the Pileated Parrakeet. He was also fortunate with his Blue-winged Grass Parrakeets, breeding several young. This next season he has great hopes of breeding Elegants Turquoisines, and Bourkes, provided he is able to secure a couple of, males for the females he already possesses.

Mr. I. D. Putman, of San Diego, California, is an aviculturist of many years' experience, and has set aside some fifty acres for his hobby. His aviaries are large and numerous, and no expense has been spared to make the pens and houses suitable for the occupants. Every care is taken to insure the birds those conditions to which they are used in a feral state, excepting, of course, complete liberty. Later Mr. Putman will probably try controlled liberty. At present his collection consists of some 150 species—more than can be seen in any of the American Zoos at one time. He also is interested in rare Australian Parrakeets, and has secured a few pairs.

Mr. Francis H. Rudkin, of Fillmore, California, is an Englishman who has made America his home for the past fifteen years. A keen observer and close student of every phase of bird-life, it is no wonder that he is a past master in the “amiable art of aviculture”. No bird is too large or common to claim his attention and care. His aviaries are many and large and arranged to suit the species for which they are intended. If the necessity arises that alterations have to be made they are immediately carried out regardless of expense. He was born at Belton, in Rutland, some sixty-five years ago, and has made aviculture his hobby ever since he was old enough to know what a bird looked like.

FRUIT PIGEONS

By J. DELACOUR

The Treronides or Fruit Pigeons make up a very definite group. The birds belonging to it may be known by their extremely short partly feathered, tarsi, and by the size of the soles of their feet, which have every toe widened at the sides by an extension of the skin; also by their having fourteen tail feathers instead of twelve as is usual with most Pigeons.

They are confirmed tree-dwellers, jumping and climbing in a peculiar manner among the branches and feeding on fruit and berries. Nearly all are brightly coloured, green predominating, but enlivened with yellow, red, or pink, till their gay colouring reminds one of Parrots.

Fruit Pigeons all have the same habits; they live in woods or in the scanty wooded places known as forest clearings, and go from place to place according as the fruit is ripe. They are particularly fond of banyan-tree fruit and nutmegs. A good many are either sedentary or merely wanderers, but some actually migrate. Mostly they live in flocks, at least for part of the year.

I have often noticed the Asiatic Fruit Pigeons in their wild state; their flight is rapid and whistling; they are not timid, returning again and again to their favourite trees; but it is not easy to see them among the foliage. Their movements are jerky, and more abrupt than those of other Pigeons, but they often stay motionless for a long time. Their voices are sometimes harsh, but others produce a real song which is very musical and may be compared to the sound of a reed flute.

Fruit Pigeons nest in trees at the time when most fruit is ripe; they lay one or two eggs in a carelessly built nest like that of the rest of the Pigeon tribe and generally have several broods in a year. In spite of their superb colouring, excelling all other Pigeons in beauty, they are rarely met with in aviaries. A great many aviculturists neglect them because their requirements are not as simple as those of others of their order or because of the dirtiness caused by their diet, or their sluggishness or sudden movements. It is also very difficult to import them in good condition, for unless they receive great attention they soil themselves very badly.

Nevertheless, when well fed and housed they are splendid aviary birds. When they first arrive they must be kept warm, but afterwards most will not need a heated shelter. They require plenty of air and should be kept out of doors in fine weather, some even all the year round. For food they should have boiled maize as their staple, chopped dried figs, soaked currants, and sultanas, boiled potato, biscuit soaked in sweetened milk, and cut up fruit. This last item, particularly banana, is good for them, but not indispensable, and they can live on boiled maize alone, from which it will be seen that they are not really difficult

to feed. To prevent their soiling their feathers, their food should be cut up small and placed in small vessels, otherwise the feathers round the beak will always be matted and dirty.

Aviary life suits these Pigeons best ; they will go to nest in baskets fastened high up against a wall, or fixed in shrubs. It is prudent to keep pairs separate or only with very distinct species, as they are quarrelsome among themselves, though harmless to other species of birds. Only a few kinds have been bred in confinement, but this is because of their rarity in our aviaries and bad housing, for they are very ready to go to nest.

Fruit Pigeons are mostly found in the hotter parts of Asia and Oceania, though some come from Africa. The sexes are in some cases alike, but differ in others. Very few kinds, when it is borne in mind how many there are in existence, have yet been imported. I have had about a dozen all told.

We will now proceed to enumerate those species which we know have been imported alive. But as their plumage is very variegated and peculiarly shaded only a general idea can be given to enable the species to be distinguished.

A

GREEN OR DOVE-LIKE FRUIT PIGEONS (*Treroninae*) are light green, often variegated with other colours, one or more yellow stripes across their wings, and thick beaks. Round their eyes are two circles, one blue, the other pink or orange. They are found in Asia, from India to Japan, in the Philippines, and the Soudian Islands. The African genus also belongs to this group. They are all of medium size, varying from that of a Turtle Dove to a small domestic Pigeon.

The PURPLE-SHOULDERED FRUIT PIGEON (*Crocopus phænicopterus*) and its varieties are found from India to Annam. It is pale dull green, with yellow under and on the tail coverts ; its abdomen and nape are grey, and it has a violet blotch on the shoulder and a brownish collar. Its beak and eyelids are blue, feet yellow. Its tail is hardly rounded. Occasionally imported. It has a pretty song, and is easily tamed if taken from the nest. Mr. A. Ezra had a Lutino, light yellow all over. *C. p. chlorogaster* from South and East India having a grey head has also been imported.

The WAALIA FRUIT PIGEON (*Vinago waalia*), occurring from Abyssinia to Western Africa, much resembles the above. It is light olive green, with pale grey head, neck, and upper breast; the lower breast is bright yellow. Its wings are a mixture of brown, yellow, and wine-colour; beak grey, red at the base; feet reddish yellow.

The GREAT-BILLED FRUIT PIGEON (*Vinago s. thomae*), from St. Thomas' Island, has also been imported.

The BARE-FACED FRUIT PIGEON (*V. calva*) from Equatorial, West, and East Africa, has a bald and bulging forehead. It is olive with a wide grey ring; its thighs and abdomen are yellow; the fold of the wing vinous, beak like the preceding, yellow feet.

DELALANDE'S FRUIT PIGEON (*V. delalandei*) from East and South Africa, is light green, with grey nape, vinous on the wing, and yellow thighs; its beak is grey and red, feet orange. In this and the preceding species the sexes are alike.

The *Treron* are Asiatic and Malayan. They are common and often go about in large flocks.

Treron capellii is large, with a very thick beak; it is light green shading into grey, with russet sub-caudal feathers. The cock has an orange breast. Feet and eyelids are yellow, the beak pale green. It is a native of Malaya and the Soudian Isles.

The HOOK-BILLED FRUIT PIGEON (*Treron curvirostra*) and its Eastern variety (*T. c. nipalensis*) are imported now and then. They can be known by their large pale green beaks, red at the base, red feet, and green eyelids. Their plumage is light green, shading into grey on the head; the cock has the shoulders and part of the back vinous brown.

The PARROT FRUIT PIGEON (*T. vernans*) found from Tenasserim to Borneo, is pale green with grey head, mauve neck, and in the cock an orange breast. Its feet are red, eyelids and beak blue. This is a slight species, as are the following:—

The DOUBLE-BANDED FRUIT PIGEON (*T. bicincta*) inhabits India, Indo-China, and Malaya. The cock resembles the preceding but for his head and nape of neck being green.

The POMPADOUR DOVE (*T. pompadora*) is like the preceding in shape. The cock is green, with the crown of the head grey, an orange blotch on the breast, shoulders, and back bright chestnut. Various

racés of this species (*T. p. affinis*, *T. p. phayrei*) inhabit India, Indo-China, and Malaya.

The LONG-TAILED FRUIT-PIGEONS (*Sphenocercus*) are recognized by their long, graduated tails, which are very pointed with some species. They do not flock like the other kinds, they are large and have very melodious voices. *S. sieboldi* yellowish, green with white abdomen, is often kept as a cage bird in Japan. *S. sphenurus* is also popular in India on account of its song. It is fairly large, olive green, greyish above, and the cock has purplish russet shoulders. It has been quite often imported and Mr. Shore-Baily has bred it in his aviaries.

Phabotreron nigrorum from the Phillipines has been imported. It is a brown Pigeon, shot with purple on its body, red and green on its neck, a white line under its eye, and the upper part of its body tawny.

(To be continued.)

INHERITANCE OF COLOUR IN BUDGERIGARS

By J. BRADSHAW, M.Sc.

There are really two questions, the one complementary to the other :—

(1) Do the principles of Mendelism apply to the crossing of the different varieties of Budgerigars ?

(2) Do present theories of colour breeding, with their f, o, and b factors, accurately represent the possibilities, and can the results of crossing be foretold in accordance with them ? These two questions, quite distinct, are usually confused. This article deals with the second, and henceforth I propose to call those who maintain the affirmative “The Theorists”. They hold that the three factors above, combined in various ways, are able to account for everything that happens in breeding the birds, and that to some extent the factors which a bird possesses, and its potentialities as a stock bird, are evident from its appearance. The factorial compositions of some different varieties are as follow, a capital letter signifies presence of the particular factor,

a small letter absence, and repetition signifies presence or absence in double quantity.

Olive	FFOOBB
Laurel Green	FFOOBb
Green	FFOObb
Olive Yellow	FFooBB
Dark Yellow	FFooBb
Pale Yellow	FFoobb
Mauve	ffOOBB
Cobalt	ffOOBb
Blue	ffOObb
White (blue shading)	ffoobb
White (cobalt shading)	ffooBb
White (mauve shading)	ffooBB
Blue-bred Green (green split blue)	FfOObb
Colbalt-bred Olive	FfOOBB
White-bred Yellow	Ffoobb

Certain results follow from these postulates. A bird obtains its colour factors from one or other parent, or from both; it cannot possess a colour factor which they do not. For example, green birds can breed only greens, yellows yellows, blues blues, and whites whites. In the case of the F and O factors a single quantity causes full effect (to outward appearance), while in the case of the B factor single quantity causes intermediate effect. Consequently blues mated to greens produce greens only, these being blue-bred, blues mated to blue-breds give 50% blues and 50% greens (blue-breds); blue-breds mated to blue-breds yield 25% blues, 50% blue-breds, and 25% greens; and so on with all the different combinations. Cobalts mated to cobalts may have, however, produce cobalts, mauves, or blues, the inheritance here being intermediate.

Such in briefest outline is the theory, and I may say that for my part I am indifferent as to whether it becomes established or not, that it neither assists nor retards my own operations, and that the heat which has been generated in the controversy has merely stimulated my sense of humour.

There is, however, one first and last thing to do with a theory—test it by the facts. The theorists claim that the evidence to date offers the most convincing proof of the accuracy of their ideas, though even here their initial enthusiasm has become tempered with caution. They no longer claim that the theory “works out true in every clutch when clutches are full” (by the way, what is a full clutch for domesticated budgies?) or that if two blue-breds are paired together the breeder will obtain “provided eight eggs hatch, two blues.” They now maintain, with greater wisdom, that these figures only apply to a large number of birds; when small numbers are in question the figures are subject to an error which can be calculated mathematically. And, when it is remembered that from the standpoint of the theory, 16 birds bred from blue \times blue-bred should comprise 8 blues and 8 greens, while the formula adopted will bring any number from 2 to 14 into line, it will be seen that the mathematician has not lacked generosity!

Concerning this idea of proportion in the young. If all the Budgerigars bred, say, in Europe, from the mating blue \times blue-bred green were provided with duly authenticated birth certificates and an accurate census taken, there would be a certain number of blues among them, which number would form a definite percentage of the whole. If this percentage proved to be 50, the theorist would regard it as vindication, while his opponent could claim that it was the “law of averages” demonstrating itself. If the percentage was not 50, the scoffer would write *finis*, while the theorist would say that among the unhatched eggs, or the young dead in nest would be a large percentage of blues or greens, whichever colour suited him best, and these, if they had materialized, would have rectified matters. Or he might argue that insufficient birds had been taken into account, or that the percentage needed adjustment but not the main idea, or that some of the blue-breds were not blue-breds at all. Equally futile is it for opponents of the theory to bring forward instances of greens with pedigrees several generations strong, breeding blues. Pedigree notwithstanding, says the theorist, these birds are really blue-breds, or they could not breed blues! They *must* have had a blue ancestor or ancestors in the remote past. (*Query*.—What was the genesis of

the blue Budgerigar?) Instances where the actual figures will not conform even when the mathematician has "browsed" upon them occasion the theorist no alarm. These are obviously extreme cases, "continued breeding will correct them." Continued breeding failing to accommodate, the numbers of birds are too small, or the mathematician must "brighten his ideas". The cases of blues mated to blues and throwing greens or olives is more troublesome, in fact the theorist is here distinctly out of form—"such exceptions are thinkable but do not contradict the theory."

This, of course, depends entirely on the point of view and an extension of these performances will certainly occasion a good deal of trouble to the theorist, and I commend to his notice certain results from the 1928 breeding season. They come from my own aviaries, but these are always open to inspection, and many breeders are conversant with what takes place therein.

The theorist commonly declines to accept results obtained in aviaries, on the ground that there is insufficient control of the matings. The sceptic will admit that two birds confined in a cage must mate together if they mate at all; at the same time he will point out that if this inhibition were universally accepted, the great majority of matings would be ineligible for consideration, and the theorist would be saved the trouble of many awkward "explanations". For as both sceptics and theorists realize, always assuming they are reasonable beings, results from aviaries are, under specified conditions, just as reliable as results in cages.

Six pairs of birds occupied one of my aviaries last year—five white-bred yellow cocks, one blue cock, four white hens and two white-bred yellow hens. One white hen paired to the blue cock and produced in three nests four blues and twelve whites. The theorist will at once acclaim the blue as split white, but since its pedigree goes back to a time when whites were unknown and there has been no introduction of yellow in that period, the sceptic will certainly not be convinced. A mesalliance with one of the yellow cocks is more promising, but even then the number of whites would be abnormal. I am morally certain it did not happen, but as I was on the spot, I of course know less about it than anybody! I would say here that none of the whites or yellows

showed any evidence of possessing the B factor even in single quantity, the yellows being pale yellows and the whites having the familiar blue shading on the back. Nevertheless, one of the white hens managed to bring forth one mauve, one cobalt, 2 laurel greens, 2 whites, and 3 yellows, while one of the yellows produced a splendid olive, which took second at the recent Crystal Palace Show. This is not "playing the game", since it does not give a chance of "explanation"; at least it leaves me none, so I will turn the problem over to the theorists. The whites and yellows are of course in order (though one white had cobalt shading), but the mauve, cobalt, olive, and laurel greens clean bowl me. In another aviary were five blue cocks, four blue hens, and one laurel green hen (blue-bred). In the previous season this hen, mated to a similar cock, had bred nothing but laurel greens and olives. The cock to which she paired was in his third breeding season, had no white or yellow ancestry in his pedigree, and had previously bred blues, greens, and laurel greens with regularity. The season's toll from these two birds was 4 blues, 3 laurel greens, 2 yellows, and 3 whites. None of the cocks in this aviary was white-bred (or split white if the theorist prefers it), but one of the blue hens had 4 whites among her offspring. She had a white grandparent, but this is not sufficient to explain her behaviour. Another pair (blue cock and laurel green blue bred) in their second year of housekeeping bred 2 whites and 1 yellow, though nothing in their pedigrees or previous breeding records would have led one to expect it. All the cocks in the aviary were blue except one cobalt, and one can only ruminate on the perversity of Budgerigars.

At the end of the 1927 season I called attention to a pair of yellows with no evidence of being split white, which had bred during the season 8 whites and 10 yellows. Evidence notwithstanding, the theorist had no difficulty in deciding that these birds were in fact split white, and as to the abnormal number of whites another season's breeding would correct this. The further season's breeding has produced 5 whites and 5 yellows, and I will again leave it to the theorist.

Out of the 10 yellows bred in 1927, I kept 7 for my own observation, and these were mated to a variety of partners. Every one produced whites, and the same thing occurred with one I disposed of; the other

two I have not traced. This is scarcely "running true to form". Every one of the whites has produced white youngsters, no matter what it mated to.

During the 1927 season I mated a yellow cock bred from the blue \times blue-bred olive parentage (which itself does not conform to theory) to a green hen bred from the white, blue-bred olive cross. They reared only one nest of youngsters—2 blues, 1 yellow, 1 green. These youngsters were mated to various coloured partners and every one bred whites. They really had no business to breed any at all! Some years ago I was informed by a breeder who had himself produced a white strain that it was his common practice to mate a white to a bird of *any* other colour, and the youngsters from this cross mated to any Budgerigar he chose, bred whites. At the time, I took this as gentle "leg-pulling", but a few years more experience has left me wondering if he was not, after all, quite serious; for certainly the performances of these birds have been altogether beyond expectations and cut right across the ideas of our theorist friends.

Many times during the last few years I have bred yellow birds from the blue, blue-bred olive cross, and olive birds from blue and laurel green parents, results which I cannot reconcile with the hypotheses of the theorists.

It is widely known by now, I should think, that if for example blues and blue-breds are allowed to breed among themselves, certain pairs will produce an abnormal number of blues and others an abnormal number of greens. If anyone else has followed this up systematically, it would be useful to compare results.

I do not at the moment see how the breeder of exhibition Budgerigars can gain any material advantage from the application of these theories of colour breeding, though the results of the wide scale operations now going on may quite likely be of great value in other directions.

My own conclusions are that this theory is either built on insecure foundations and therefore unstable, or must be considered in conjunction with other factors which are supplementary or act in antagonism to it. Which view is correct the future will doubtless reveal.

THE FOREIGN BIRDS AT THE CRYSTAL PALACE

By A. A. PRESTWICH

The Grand National Show at the Crystal Palace on the 7th, 8th, and 9th February, was a great success as regards entries, there being some 240 in the 33 classes. The exhibits were more numerous than last year, but taken as a whole they lacked the rarity which we have become accustomed to expect at the "Palace". There were, nevertheless, some every interesting birds on view. To the great disappointment of all, Mr. Whitley did not send his usual large consignment; also the entries of Lord Tavistock and Mrs. Victor Cooper were conspicuous by their absence. Fortunately there were several new exhibitors, notably the Rev. R. B. Abell, Dr. G. Elphick, and Capt. H. H. Liddell-Grainger, all of whom sent large teams. Mr. C. T. Maxwell made a very welcome reappearance, and his numerous successes included the winning of the "Grand National" silver medal for the best foreign bird in the show, namely, Wilson's Bird of Paradise. As usual, Mr. John Frostick was well to the fore.

Several exhibitors were heard to complain of the chilliness of the hall, the improvements in the heating arrangements apparently not being up to their expectations. We feel, however, that their criticisms were more or less justified. The temperature was considerably higher than in previous years, and none of the exhibits appeared unduly distressed, but then the majority of the entries were fairly hardy species and did not require much heat. There is still ample scope for the "Palace" engineers to further improve their heating system. The nature of the building precludes anything like a constant and agreeable temperature, and we do not think that the conditions at the "Palace" will ever be such that "even the most delicate species can be sent with perfect safety". The lighting left much to be desired, and there is need of better staging—some of the smaller birds being very difficult to see. Surely the small cages, at least, could be staged in the same way as the other sections.

The show was under the managership of Mr. A. J. Platon, who proved himself a worthy successor to Mr. A. W. Smith.

The "Parrot" classes were singularly devoid of interest and contained little of note. The class for Lories and Lorikeets, etc., contained nine entries and was won by Mr. Frostick's veteran Yellow-backed Lory male; a good pair of Swainson's sent by Mr. W. Atkin gained second, and third was awarded to a pair of Blue-crowned Hanging Parrakeets (Mr. J. Tokinchi Otaki). Mr. Frostick also sent his pair of cage-bred Swainson's. Lovebirds, etc., was an even class, first going to Mr. Maxwell's Peach-faced; Dr. Elphick's Fischer's being second, and Mr. H. J. Willshire's Black-cheeks third. There were three entries of Peach-faced—a species more numerous now than for several years; Black-cheeks on the other hand, are rapidly becoming more scarce. The class for *Brotagerys*, etc., was devoid of entries. Mr. Maxwell won the class for Cockatiels, Red Rosellas, Redrumps, etc., with a smart pair of Redrumps; second went to Mr. H. W. Simpson for a Red Rosella, third to Mr. A. E. Roblin for an Indian Ring-neck, and fourth to Mr. Willshire for a pair of Redrumps. There were but two entries in the class for the smaller Macaws and more common Conures; Mr. Frostick was first with a Golden-headed Conure and Mr. F. W. Mattingley second with a pair of Half-moon Conures. Common King, Pennant's, Crimson-winged, etc., was another poorly supported class—only four entries. Capt. Liddell-Grainger's Bauers fully deserved their first prize; a good Red-vented Blue Bonnet male sent by Mr. F. R. Child was second, and Mr. Frostick's Barnard third. Mr. L. W. Hawkins sent the only exhibit in the class for "All other species of Parrakeets and Conures", namely, a Queen of Bavaria Conure—not in the best of plumage, but deserving of competition. This class is usually the most interesting in the section, and frequently contains the best bird in the show, but this year it was a complete failure. The next class for Grey, Timneh, Senegal, and various specified Amazons provided another win for Mr. Maxwell, his very excellent Rupell's Parrot being in perfect condition; second went to Mr. Frostick's Plain-coloured Amazon—"Lorita"—which was in great evidence as a "talker"; third and fourth prizes went to Mr. W. Poole for a Timneh and a Grey respectively.

All species of White and Rose-breasted Cockatoos were represented by a single pair of Eastern Miniature sent by Mr. Frostick. Another

win was recorded by Mr. Maxwell in the class for "All other species of Cockatoos and Macaws", his Lear's Macaw leading his Salmon-crested Cockatoo; the rest of the class being composed of numerous Sulphur-crested Cockatoos entered by the Crystal Palace Trustees. The last Parrot class, that for all other species, was a failure. Mr. W. Poole was first with his Red-sided Eclectus male, and Capt. Hammond second with a good Short-tailed Parrot. Only one pair of birds materialized for the hybrid class, consisting of Common Grey \times St. Helena Waxbills bred by Mr. P. W. Teague.

In the class for Quails, Partridges, Pigeons, etc., Mr. Frostick was first with a pair of Australian Plumed Ground Doves; a pair of Diamond Doves gained second for Mr. W. H. Potter, and third went to a Chinese Painted Quail sent by Mrs. A. L. Bruce. The next three classes for various common seed-eaters, were won by Combasous (Capt. Liddell-Grainger), Cordon Bleus (J. H. Franklin), and White Java Sparrows (W. P. Maker).

First and second prizes in the Common Grass-Finch class were taken by Mr. Willshire with a splendid pair of Diamond Finches and a single Heck's Long-tailed Grass-Finch; third prize was awarded to Mr. J. Cranna for another good pair of Diamond Finches. The class for the rarer Grass Finches and rarer Waxbills contained seventeen entries, and was won deservedly by Mr. A. Martin's Violet-eared Waxbill; second and third going to pairs of Peter's Spotted Fire Finches shown by Mr. Frostick and Mrs. H. C. Humphries respectively. No less than five pairs of this very beautiful, and hitherto almost unknown, species were in this class. Fourth prize was gained by Mr. Frostick's Jameson's Fire Finches. Mr. P. W. Beauchamp won the class for Buntings, Siskins, etc., with a very good Golden-breasted Bunting; Mr. Cranna was second with Red Siskins, and Capt. Hammond third with a Gay's Finch. This class contained a pair of "Mystery" birds sent by Mr. Andrew Wilson, and a single sent by Mr. Beauchamp: in both cases the birds had been caught at sea. They proved to be no great rarities the former being North American Snow-birds and the latter a North American Song-Sparrow.

All species of Cardinals, Hawfinches, etc., first Mr. J. T. Otaki's Japanese Hawfinch, second Mr. Maxwell's Thick-billed Cardinal,

third and fourth, Mr. Fostick's pair of Virginian Cardinals and a Blue Grosbeak.

This year the Weaver and Whydah class received more support than hitherto, there being seven entries. A Buff-crowned Whydah gained the premier award for Mr. L. W. Hawkins; second prize was given to Mr. Allison's Napoleon Weaver, and third to Capt. Liddell-Grainger's Crimson-crowned Weaver.

The class for Common Tanagers was the best seen for many years, there being seventeen entries—over half of which were sent by our member, the Rev. R. B. Abell. First prize was given to Mr. Cranna for a very fine Superb; the Rev. Abell took second and third for Palm and Ornate. Amongst the rare Tanagers and Sugar-birds, Mr. Frostick was first and third with a Yellow-winged Sugar-bird and a pair of Indian Zosterops, the gap being filled by a pair of Tanagers, sent by Mr. Maxwell. They are as yet unidentified, but the Rev. Abell, who also sent a pair, believes them to be the Blue-bellied. Fourth prize went to the Rev. Abell for a good Cayenne.

There was but one Sunbird, a fine Southern Malachite belonging to Mr. A. Martin. The Robins were a good pair of American Blue Birds, which won first for Capt. L. R. Waud, and four pairs of Pekins, the best of which were those shown by Miss I. Hebbert and Mr. C. O. Heine.

There were eight entries of Shamas in the class for Shamas and Clarinos. Of the former octet, Mr. W. Jarratt's bird was the best, gaining second prize. First and third were awarded to Mr. Maxwell and Mr. Frostick for two excellent Clarinos. The Glossy Starlings and Spreos were a comparatively poor class; of the four entries Mr. C. S. Dunstan's Purple-headed Glossy was far ahead of the others; Mr. Simpson was awarded second for a pair of Green Glossy, and Dr. Elphick third for a pair of Spreos.

The all species of Mynahs, Fruit-suckers, Jay-thrushes, etc., was won by Mr. Beauchamp's Golden-fronted Fruit-sucker, the only other exhibit being Mr. J. R. Thomson's White-crested Jay-thrush. Eleven exhibits were staged in the class for Hangnests, Troupials, etc., the best being a pair of Mexican Troupials sent by Dr. Elphick; second, Mr. L. Sutton's Yellow-crowned Hangnest; third and fourth, Capt.

Hammond's Yellow-rumped and Black Cassiques. The last-named exhibitor also sent an unnamed Troupial, probably the Golden-crowned ; and Mr. Frostick a Hangnest which appeared to be an immature Black-throated. Dr. Elphick also won the class for Pies, Jays, Barbets, Toucans, etc., with a good pair of Mexican Blue-crested Jays ; his pair of Alpine Choughs gained second ; and a fine Green Toucanette secured third for Mr. Maxwell. There were three Birds of Paradise, the first prize-winner being Mr. Maxwell's Wilson's, adjudged the best foreign bird in the show. A good Red was second (Mr. Maxwell), and a Greater third (Mr. Goodwin). The two remaining classes were for " All other species of insectivorous and fruit-eating birds ' smaller than ' and ' larger than ' a Silver-eared Mesia ". The former was won by Mr. Goodwin's rare Chestnut-capped Buarremon (*Atlapetes pileatus*)—the first shown ; second went to Mr. Dunstan's Rufous-bellied Niltava, winner of many premier honours ; third to Mr. Allison's Bush Chat, and fourth to a smart little unidentified Woodpecker belonging to Mr. Maxwell. The last class was won by Mr. Maxwell with a new species of Tanager, possibly the Black-throated or Red-capped ; this bird was a male. The Rev. Abell gained third with a pair of the same species, his chance being spoilt by a rather rough female lacking a large portion of her tail. Capt. Hammond gained second and fourth with a Black-necked Saltator and a Pitta.

The foreign section was judged by Mr. D. Seth-Smith and Mr. Allen Silver. This year they exchanged classes, so that Mr. Seth-Smith judged the majority of the seed-eater and insectivorous classes and Mr. Silver the Parrots and some seed-eaters. No adverse comments were heard, so presumably the experiment was a success. At the Judge's luncheon, Mr. Silver was called on to respond to the toast to the Judges—a task he carried through in his usual inimitable manner.

A definite movement is on foot to include the ubiquitous Budgerigar amongst the domesticated species. By many the universal favourite is no longer considered an alien, so that possibly at some future date *M. undulatus*, and its various colour varieties, may join the Canary and pass outside the scope of the Avicultural Society. Hence, we do not propose going into details of the exhibits. It must suffice to state that there were 252 entries in the 14 classes—that for Blues containing

no less than 47. There were some good birds in each class and a few were excellent, but many were exceedingly poor, and stood little chance of being "placed". It was obvious that some of the exhibitors had not the remotest idea of what is required in a show Budgerigar, according to the standards of the Budgerigar Club. Presumably the recent bad weather was responsible for the lack of form of numerous exhibits. The best bird in the section was a very fine cobalt sent by Mrs. D. E. Wall, who is to be congratulated on her success. Mr. R. J. Watts carried out his difficult duty with conspicuous skill and further enhanced his reputation as a judge.

A very interesting "sport" was sent from Germany by Mr. C. Balser. Given a cursory glance this bird appeared to be a good blue male, but on closer inspection—when the bird turned round and faced right—it was remarkable in that the whole of the right flank and a large portion of the chest, for the entire length of the bird were a pure green. The rump and back were the usual blue, but there were small green areas round the vent and tail-coverts. In addition—on the green side—there was a splash of yellow on the white of the throat, and another on the head pencilling. We understand that there is a somewhat similar female at Blanchards. In the latter bird, however, the whole of one side is blue and the other green.

CORRESPONDENCE

LOVEBIRD HYBRIDS

SIR,—Mention has not yet been made in the AVICULTURAL MAGAZINE of the following Lovebird hybrids:—

A. fischeri × *A. lilianæ*, T. L. S. Dooly.

A. nigrigenis × *A. fischeri*, W. R. H. Bearby.

A. personata × *A. lilianæ*, W. R. H. Bearby and A. Lewis.

A. personata × *A. fischeri*, W. R. H. Bearby.

The last-named cross has already been obtained by Mrs. Miles, but with the parentage reversed.

Also should be added the cross between *A. fischeri* and *A. roseicollis*, obtained by Mr. Whitley. This has been bred in France by M. C. Olivaux, of Rennes.

A. A. PRESTWICH.

[As *Agapornis* hybrids appear to be so easily obtained it is to be hoped that someone will make experiments with them on Mendelian lines.—ED.]

AVIARIES FOR PARRAKEETS

SIR,—The reference to change of top-soil as a substitute for aviary-moving, made in your very kind review of my book, leads me to send the following explanatory notes as being possibly of some general interest.

For about seven years my collection of psittacine birds were housed in the Isle of Wight in fixed aviaries which were annually re-turfed as suggested. The district, judged by the percentage of losses from what I may term “uncontrollable” illnesses—chills, pneumonia, and fatty degeneration of the internal organs, in spite of prudent feeding—was a normally healthy one for birds. For the next seven years the collection was housed in somewhat larger movable aviaries in a very unhealthy district, where Budgerigars and Zebra Finches die quicker than they breed and even a domestic Ancona Fowl, not reared on the place, never survives a moult either in a pen or on free range.

During the closing years of the birds’ sojourn on the Isle of Wight it was quite impossible to get Many-colours, Blue-bonnets, or Yellow-bellied Parrakeets to live for more than a few months. Although the aviaries were lightly stocked with a pair of birds in each, these susceptible species invariably fell victims to septicæmia, septic fever, or tuberculosis and I was obliged to give them up as hopeless. In fixed aviaries at Warblington, Blue-bonnets also died within a year from septicæmia, proving that the same germ is in this district. Since putting the birds into movable aviaries I have never lost the above-mentioned species from the above-mentioned complaints. Yellow-bellies are no more trouble than any other Broadtails. Blue-bonnets I have only had for a few months, but they remained free from serious illness all the time. Many-colours did not do well, and several were lost from chills,

pneumonia, and fatty degeneration, but some did at least rear healthy young, and all kept free from the original scourges. One pair are still living in a friend's aviary in a healthier district after about seven years' captivity, which is nothing to boast of, though probably a record seldom reached by the species in this country. In the fixed aviaries the young Ringnecks bred were nearly all degenerate—infertile and often more or less deformed. Those reared in movable aviaries from the same parents (apart from some that were victims of unsuitable nests) have been perfect. The only large cock Broadtail I bred in the fixed aviaries—a Barnard—proved sterile. Blue-winged Grass Parrakeets reared in the fixed aviaries were degenerate. Some lost all their flights at once. The cocks were sterile, and no hen survived the laying and incubation of her first clutch of eggs. In the movable aviaries, although the imported adults did much worse, owing to the unhealthiness of the district, falling victims to pneumonia and chills, such young as were reared were perfect, and one of the infertile cocks above mentioned became serviceable for breeding. I can only explain the rather puzzling failure of change of top-soil to produce results equal to change of site on the following hypothesis.

During the course of a year the entire soil of an aviary flight receives a very heavy contribution of droppings from the birds that inhabit it. If you put a pair of Parrakeets into a 24 ft. aviary in dry weather when the soil of the flight is bare, it is astonishing how much dirt will be visible at the end of a week. At the end of a year the deposit would probably be not much less than some lbs. to the square foot. In ordinary weather the extent of the fouling is not very apparent as the droppings are washed down into the soil by the rain. But if it be true that there is any virtue in cleanliness because the excreta of animals tend to breed bacilli injurious to the health of animals, then the state of the aviary is not so harmless as it appears. To a depth of several feet the soil, as a result of successive rains, is more or less impregnated with droppings and their attendant bacilli. When you re-turf the aviary you merely superimpose on a bed of soil deeply contaminated a foot or less of clean earth. Is it unreasonable to assume that the microbes quickly work back through this upper layer and leave you as badly off as before ?

TAVISTOCK.

THE BLUE MASKED LOVEBIRD

SIR,—I am interested in your note in the January number on the above, but I fear as this bird is most probably a sport, the Mendel Laws will not work out, for this theory a Blue should be bred from pure Blues for a few generations.

I should advise pairing him this season to another common Masked hen, and then breeding from the young of both hens in 1930. Of course, the young can be paired together this season, to try for the 25 per cent.

When I first produced Blue Budgerigars all I had to work on was a Green hen, three-eighths blue, three-eighths green, a quarter yellow. A bird from this hen and a selected common Green cock, paired to a bird from the same hen and another selected cock paired together produced Blues.

I am not surprised with your results in Budgerigar breeding ; several friends and myself find that if the Blues are bred from Blues for several generations, and the Greens are a good strain of Blue-breds you get nearer 75 per cent than 50 per cent. In fact, I have had a nest of five Blues from a pair of Blue-bred Greens.

Where a large number of pairs of unknown pedigree are bred from, very often the 25 per cent and 50 per cent works out ; the good pedigree birds making up for the ones of bad or no pedigree. In breeding Budgerigars, like breeding any other stock, I trust to pedigree every time.

JOHN W. MARSDEN.

[The first Blue Budgerigar was nothing more than a "sport", but from this the whole race of Blue Budgerigars has been produced. Whether the progeny from the Blue Lovebird, mated to a normally coloured bird will prove to be heterozygotes and produce 25 per cent of Blue young remains to be proved, but we shall be very surprised if Mendel's Laws fail here.—Ed.]

BREEDING LORIKEETS IN A CAGE

SIR,—According to promise, I am writing to tell you that my Blue Mountain Lorikeets are now fully reared, and in a cage on their own.

The parents began to sit on the 28th September, 1928, on two eggs, both of which were hatched on the 17th October, 1928 ; the two

youngsters came out of nest for first time 13th December, 1928, and on the 20th December left the nest for good. For the first two or three nights afterwards the two old birds slept on the perch with their babies—one on each side and covered them with outstretched wing—quite a pretty sight. Now the young ones are almost as large and beautiful as the old ones; the beaks, black at first, are getting redder every day. They are perfectly charming and we are, of course, very delighted that we have done something that probably no one else has done in a small open-wire, wagon-shaped, cage—30 in. long, 28 in. high, 15 in. wide! The young have been reared on exactly the same food as the old ones—no extras—and are, in my opinion, as good in every way as any ever bred in freedom.

The parents have gone to nest again, and are now sitting on two eggs laid on the 19th and 21st January, 1929.

JOHN FROSTICK.

AN OFFER OF PARRAKEETS

SIR,—Owing to lack of room I am obliged to part with two of my hybrid Sula Island King \times Crimson-winged Parrakeets—a 1927 cock and one of 1928. The younger is a trained day-liberty bird and the older one could be trained without the slightest risk or trouble. I should be pleased to give one to any member who would get him a mate and fly him at liberty.

Any female Aprosmictine or Polytetine Parrakeet would do as a companion—Crimson-wing for choice; otherwise, King, Rock Peplar, or Barraband. These hybrids are very attractive birds and although not yet in fully adult plumage are of exceptional beauty—very rich, dark green with blue rumps, crimson thighs and abdomens, and red caps and red throats. They are very lively and intelligent and very hardy, never having had a day's illness or any artificial heat since they were hatched. The two-year-olds will feed from the hand if one is outside the aviary, and the young bird follows me about, when loose, and will come within a few feet for a peanut.

It is a little difficult to say whether they would be safe from Owls if allowed to roost in the open. The two-year-olds are more powerful

birds than Crimson-wings, which Brown Owls take, but not as large as Common Kings, which are left alone. If it were decided not to risk them out at night a roosting aviary would have to be arranged alongside the breeding aviary occupied by the hens.

It is difficult to say whether these hybrids would be fertile. In all probability they would be, as their parents are fairly closely allied.

TAVISTOCK.

AVICULTURAL NOTES

By THE EDITOR

In 1927 the experiment was made of taking Nightingales to New Zealand. They survived the voyage and were liberated on Christmas Day, 1927, after considerable trouble from the authorities, who feared that any alien avian importation might cause trouble, presumably by eating their crops or killing their sheep! It was feared that these birds would migrate and no one knew where they would go to, and the possibility of their returning seemed remote. However, they, or at least one of them, has apparently done so, for Mr. Angus Wilson, who took them out, writes to me that one has been heard singing, a year after its liberation, in the vicinity of Auckland.

Those of us who have seen or heard the wonderful Lyre Bird in its native haunts, either in National Park, near Sydney, or near Melbourne, will read with interest an exhaustive article on this unique bird, by Dr. J. A. Leach, in the January number of the *Emu*. It is very satisfactory to hear that it still exists in some numbers within its somewhat limited range in South-Eastern Australia, and much interest is taken there in its protection by the inhabitants.

When I was in Australia twenty years ago I spent some delightful days in the haunts of the Lyre Bird, and not only frequently heard its rich note but was able to watch the bird itself. But at that time the horrible slaughter of these birds was still going on in order to provide tails as ornaments! This traffic is now definitely put a stop to, and the bird is absolutely protected as it should have been long ago.

A project is on foot to introduce the Lyre Bird into Tasmania, where the fox, which has been very destructive on the mainland, does not exist. The conditions in parts of Tasmania would seem to be ideal for this species, and the necessary expenses have been provided. The Tasmanian Government has undertaken not only to permit the importation of the birds but to render all assistance and protection possible. We shall look forward with great interest to hearing of the successful accomplishment of the introduction, which should give one of the most interesting birds in the world a new lease of life.

A member would like to know what is the natural length of life of small birds such as Waxbills, etc. ? It is a question that is not easily answered, but we may be sure that very few birds attain to their normal limit under captive conditions. But neither do they in a state of Nature where their natural enemies are constantly on the alert. To obtain some idea of the natural limit of life of a small bird one naturally takes the Canary as an example. A Canary or Goldfinch is an old bird at twelve to fourteen years, and one would expect a Weaver or Singing-Finch to reach this age, but a Waxbill would probably attain to little more than half this, while a Parrot would probably more than double it.

POEMS ON BIRDS, FOR CHILDREN

Many children love poetry and many also love birds, and Mrs. Currey's delightful little book of poems about birds, especially written for children, will appeal to the younger generation of bird-lovers. It contains poems on some fifty well-known birds, and we can heartily recommend it to parents, who will find much pleasure in reading it to their children. It is published, at the modest price of 4s., by Messrs. Stephen Austin and Sons, of Hertford.



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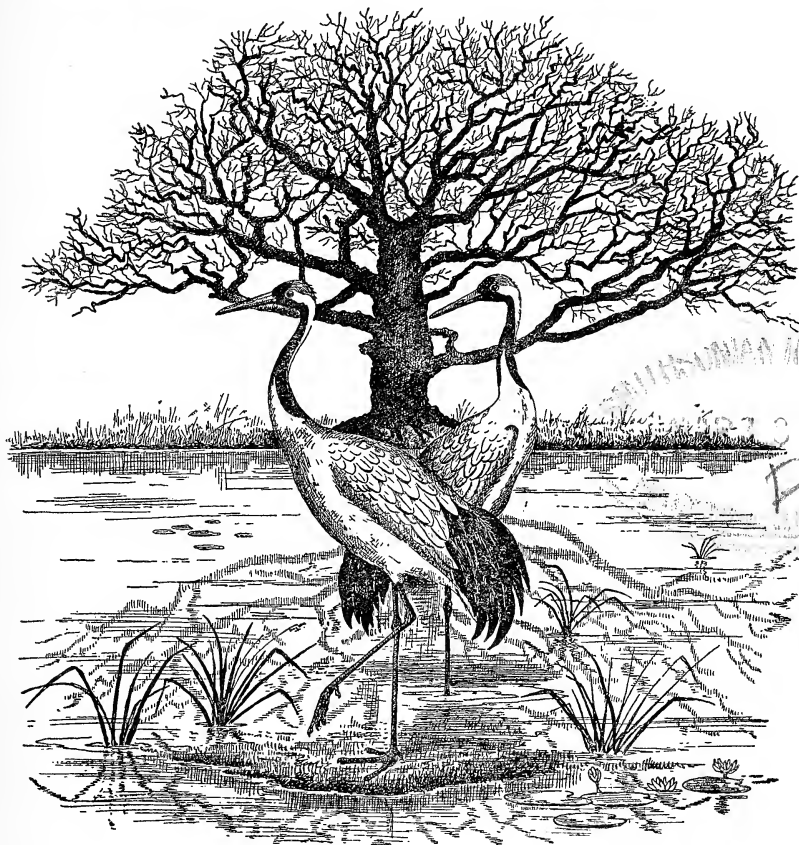
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FOUNDED 1894

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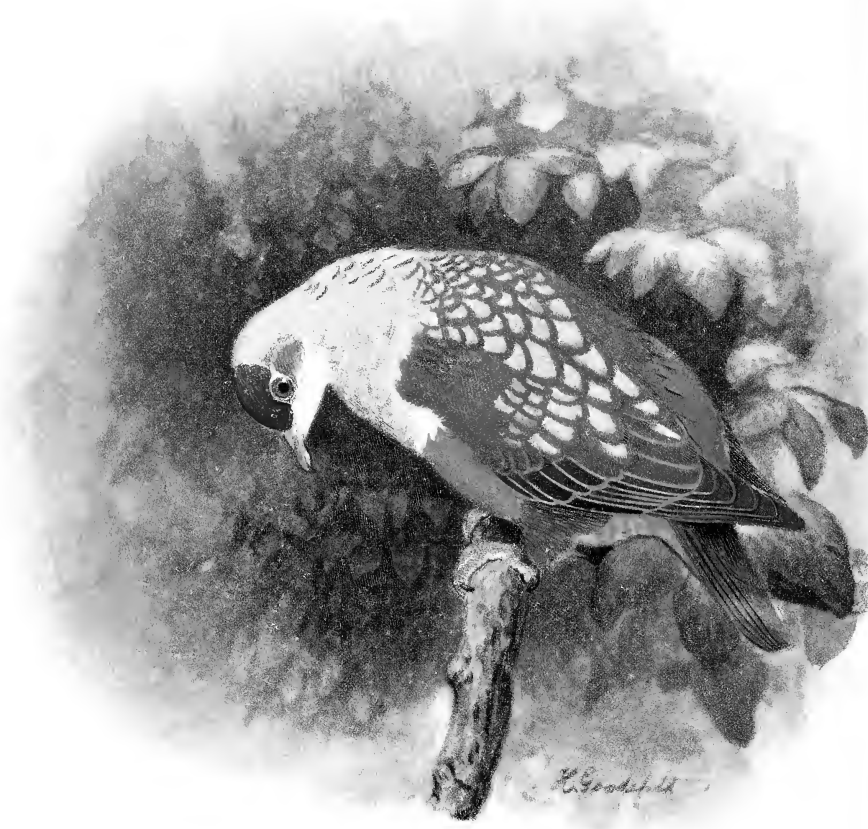
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APRIL, 1929.

FRUIT PIGEONS

By J. DELACOUR

(Continued from p. 67)

B.

The Ptilonopinae are a large family of Oceanic Islands birds, some of which extend as far as to Malay. They are the brightest coloured of all Pigeons. As a rule deep green is their predominant colour, mingled with other bright hues. The hens are usually altogether green and do not resemble the cocks.

About a dozen species have been imported alive so far as we know, but the list lengthens every year. It is much to be wished that still more should come over, for they are not difficult to keep in health and show inclination to nest.

We will briefly describe those species which we have observed in aviaries, but it is quite probable that others have been imported.

THE JAMBU FRUIT PIGEON (*Ptilinops jambu*) from Melanesia is most commonly imported and is one of the most beautiful; it is dark green with carmine head, white sided neck, and a pink spot on the breast. The under parts are yellowish white in the cock bird; the hen is green.

LECLANCHER'S FRUIT PIGEON (*P. leclancheri*) from the Philippines is green, with greyish white head and neck and black chin. The hen is green.

PEROUSE'S FRUIT PIGEON (*P. perousi*) found in Samoa and the Fiji Islands is green with bronze spots on the wings. The crown of the head is purplish red; cheeks and throat yellowish green; its breast is dappled pale grey with green; abdomen yellowish; the sub-caudal feathers purplish pink.

THE BANDED FRUIT PIGEON (*P. fasciatus*) also found in Samoa has the crown of the head rose violet; the neck and under parts pale greenish yellow, green above; the sub-caudals tawny yellow.

THE PURPLE-CROWNED FRUIT PIGEON (*P. porphyraceus*) from Fiji and Tonga, is rather dark green with neck and breast light ashy green, the forehead and crown of the head lilac pink, surrounded by a faint yellow line and yellow sub-caudals. The sexes are alike.

THE SUPERB FRUIT PIGEON (*P. superbus*), found in North Australia, New Guinea and the Moluccas, is one of the finest species of the genus. The cock has a red-purple crown, sides and nape of the neck coppery red; the front of the neck and upper breast greyish white, succeeded by a black line shot with blue. White abdomen; upper part of the body green mingled with blue and yellow in the wings, green tail with grey tip. The hen is green, grey and green underneath, and has a blue spot on her head.

THE LILAC-CROWNED FRUIT PIGEON (*P. coronulatus*) is a small species from the Aru Islands and New Guinea, is golden green with rose lilac crown passing into purple on the nape and surrounded by a narrow yellow line; it has a violet spot in the middle of its abdomen; yellow sub-caudals and yellow in its wings. This most charming pigeon has been bred for several years by Captain Stokes in an outdoor aviary having a heated shelter. His birds nest in boxes hanging on the walls of the shelter; they lay only one egg to a clutch; incubation lasts eighteen days, and the young leave the nest while still very small, but able to fly, when about twelve to fifteen days old. They are fed on fruit and Savoy biscuits soaked in Nestle's milk.

THE ORANGE-BELLIED FRUIT PIGEON (*P. iozonus*) from the same localities is vivid green with a large orange spot on the abdomen. The sexes are alike.

WALLACE'S FRUIT PIGEON (*P. wallacei*), found in the Aru and neighbouring islands, has the crown of the head purple red; neck,

breast and upper back light grey, a white crescent on the breast, succeeded by orange russet; the tips of the wings and back grey dappled with bronzy green; wings and tail green variegated with yellow.

THE PURPLE-BELLIED FRUIT PIGEON (*P. bellus*) is dark green, with purple crown and middle abdomen, and a wide light yellow crescent on its breast. It is a native of New Guinea.

THE ORNAMENTED FRUIT PIGEON (*P. ornatus*) and the allied form *P. o. gestroi* from the same place are green, with a yellow band across the tail, pale yellow sub-caudals; breast and collar yellowish brown, a purple and grey spot on the shoulders, and a pearly grey line from beak to nape. The type has a reddish purple crown, while the variety has a greenish yellow one.

THE BLACK-HEADED FRUIT PIGEON (*P. melanocephala*), of which there are several forms from Java to Celebes, has lately been imported in some quantity. It is green with black crown; the rest pearly grey as is also its neck, and chin, with pale yellow throat. Its sub-caudals are yellow and red. The hen is green.

THE MAGNIFICENT FRUIT PIGEON (*Megaloprepia magnifica*) from East Australia, and its varieties found in the Oceanic islands, well deserve their name. It is a splendid bird, about the size and shape of a Rock Pigeon; it has a grey head; the upper parts golden green with yellow on the wings. Its neck is green, with a band of glowing purple red which widens and covers the breast and upper abdomen, the rest being yellow; its tail is green. The sexes are alike.

THE WART PIGEONS (*Alectrænas*) are peculiar to Madagascar and the neighbouring islands. One species from the Seychelles (*Alectrænas pulcherrima*), the Red-crowned Wart Pigeon, has been imported. It is of medium size, with a short square tail, fine deep blue, having its neck ornamented with pearly grey slender pointed feathers, and bright red vertex; between beak and eyes vermilion caruncles. The sexes are alike.

This handsome species bred in 1917 in my aviaries at Villers-Bretonneux in the open air. Only one egg was laid in each clutch. The young grew very quickly and were fed on boiled potatoes and rice, crushed hemp and fruit. The young plumage is dark grey barred with

light grey. These Pigeons must be kept in the open, for they soon perish if kept indoors. They are very spiteful and it is difficult to make a pair agree together.

The *Carpophaginæ* come pretty near to the true Pigeons of the genus *Columba*, but they are shorter in the leg and heavier in build.

They are very large, as big as our Wood Pigeons or bigger, with square, rather long tails. They live on fruit and berries like the preceding species. They are very hardy in confinement and do well on boiled corn and potato. They will also eat some uncooked grain. Most species have pale grey or tawny heads, necks, and upper parts of the body, rather light green mantles, more or less dull, with brilliant metallic reflections and purplish red legs and feet. The sexes are alike. About fifteen species have been imported.

The *Globicera* are distinguished by a fleshy protuberance at the base of the beak.

THE PACIFIC FRUIT PIGEON (*G. pacifica*) found from Samoa to New Guinea, has a light grey head, the under parts are pale vinous, the mantle bronze green, a dark grey tail and chestnut sub-caudals. Its feet are red, beak and caruncle black.

THE RUSSET-THROATED FRUIT PIGEON (*G. rufigula*) from the Solomon Islands is like the above, but has a grey mantle, cheeks and throat and breast vinous deepening to chestnut on the abdomen.

THE IMPERIAL FRUIT PIGEON (*Muscadivora ænea*) is very common from India to Malaya and the Philippines. It has no caruncle like its fellows; it is pale grey, slightly vinous, with bronze green mantle and grey tail. The sub-species from India and Indo-China is most frequently imported, *M. æ. sylvatica*, which is grey and not vinous.

THE NICOBAR FRUIT PIGEON (*M. æ. insularis*) is really only a race of the Imperial, lacking the rosy tinge on head and upper parts. It nested in the Zoological Gardens of London, but did not rear the young.

THE ZOÆ FRUIT PIGEON (*M. zoæ*) of New Guinea differs from the above in having a grey head and belly and red neck.

THE PAULINE FRUIT PIGEON (*M. paulina*) of Celebes is rosy grey above and its nape and behind the neck is coppery chestnut. The mantle is similar to the preceding.

THE MOLUCCAN FRUIT PIGEON (*M. concinna*) closely resembles the

Pauline, but the nape is only tinged with red. The Figian species (*M. latrans*) is vinous grey above deepening to russet on the abdomen.

WHARTON'S FRUIT PIGEON (*M. whartoni*) is darker and has nape and occiput bronzy green as well as the back; forehead, head, crown, its cheeks and throat are dark grey, and its under parts are vinous purple.

THE SPECTACLE FRUIT PIGEON (*M. perspicillata*) from Halmaheira has a dark slate coloured head and neck with a white streak round the eyes and on the forehead; its neck behind and the mantle are metallic green. The under parts are pale grey.

FINSCH'S FRUIT PIGEON (*M. finschi*), found in New Ireland, differs from all the above by having a barred tail, blue at the root, ashy grey and then black. Its head and neck vinous grey; breast and belly chestnut; mantle coppery green; blue flights. Its importation is uncertain.

MUELLER'S FRUIT PIGEON (*M. muelleri*), coming from the Aru islands and South New Guinea has a vinous grey crown, white chin and, throat and occipital collar followed by a wide black collar; the throat in front and upper breast are pale grey; the back is vinous red, mantle slaty grey; the under parts are vinous red; tail dark grey, with a light grey subterminal band.

M. pinon, of New Guinea and the neighbouring islands, has a slaty grey mantle; a white line round the beak and eyes; lower back and breast purplish chestnut; head and neck vinous grey, carmine red feet; and eyes set in coral.

THE WHITE FRUIT PIGEONS (*Myristicivora*) are found among wooded coasts chiefly on small islands from the Andamans to Australia. In shape and habits they are like the preceding.

Myristicivora bicolor has a wide range and is fairly often imported. It is creamy white and had black tips to its wings and tail, as well as black spots on the sub-caudal feathers; its beak and feet are lead colour. It is strong and hardy. Its variety (*spilorrhea*) inhabiting Australia and New Guinea, has more and more widely spread black spots under its tail. Another variety (*luctuosa*) from Celebes has slaty grey flights fringed with black. The typical forms are mostly found in the west. By feeding on certain mixtures the creamy colour of

these Pigeons may be made paler or accentuated until it becomes almost orange.

The Double-crested Pigeon (*Lopholæmus antarcticus*) from Eastern Australia, has a large crest in front, covering the head, which is prolonged by a russet one at the back ; the rest of its plumage is grey, light underneath, almost black above. Its beak is pink and feet red.

"DE GUSTIBUS"

By THE MARQUESS OF TAVISTOCK

"*De gustibus non est disputandum*": there is no accounting for tastes, runs the old Latin saying and it would appear to apply to birds quite as much as men. When I was training the cock Brown's Parrakeet to the use of the feeding box previous to allowing him full liberty, it did occur to me, knowing, as I do, a Broadtail's love of fighting, that he might have a few scraps, but I confess I did *not* anticipate a gladiatorial show pure and unrelieved. Before his release he had spent several weeks in solitary confinement ever since he had very nearly murdered his wife for no better reason than that he had been separated from her for a few days while undergoing treatment for a slight chill. As during the summer she had been the mother of his three children, I hoped that in common decency the first use he would make of his freedom would be to go and apologize to her, as every well-conducted Brown's is monogamous and pairs for life. Failing that I thought he might pay his addresses to an unmated female of his species who had been ogling him from the next aviary but one.

But I was mistaken on both counts ; as soon as he was out of the aviary, turning a deaf ear to the calls of the two hens, he made a bee-line for the Yellow-mantle's aviary on the opposite side of the field : it was not love for which his soul had thirsted, but war. Cock Rosellas vary considerably in pugnacity and prowess, and my present Yellow-mantle happens to be a particularly aggressive bird, almost the equal of old "Joseph" who was the supreme tyrant of the garden many years ago. He and the Brown's went at it hammer and tongs. After a few rounds the latter discovered that he was scarcely a match for the

bigger bird in close fighting but still he would not dream of leaving him in peace and kept dodging round and round the aviary, challenging him and only avoiding his angry swoops at the latest possible moment. About midday the Brown's transferred his attention to the breeding pair of Yellow-rumps, both of which were shut up. Usually half-inch mesh will prevent big Parrakeets from doing each other serious harm, but where there's a will there's a way, and when I came round in the early afternoon the Yellow-rump was sitting sulkily on a perch with a bleeding leg tucked up, while the Brown's hurled insults at him from outside. He continued this pastime for the next hour until the unfortunate Yellow-rump was goaded by the taunts of the foe and the reproaches of his wife to forget his wound and renew the fray. (I may say that my own efforts to drive the Brown's off were wholly unavailing.) Up and down the wire the combatants manœuvred and at last the Yellow-rump saw his chance and the defiant whistling of the Brown's changed to a dismal screeching as his enemy got the grip for which he had been waiting and hung on. Richly as I felt the Brown's deserved all the punishment he got I interfered to prevent the infliction of a fatal injury. When the Yellow-rump let go of him blood was pouring from his beak, from, we afterwards discovered, a deep bite in the tongue. But even then he had not had enough, and though he treated his opponent with more respect for the next few minutes he still would not leave the aviary. The Yellow-rump realized very well that he had scored in the last round, and it was surprising with what an increase of energy and confidence, despite his wounded leg, he flung himself at the wire wherever the Brown's settled: "I made you squeal that time, all right," he was clearly saying, "and if I had not been interrupted you would not have got off so easily." However the Brown's managed to give him a bite on the forehead before deciding to retire for a brief rest to the top of an adjacent aviary. I really did hope that he might then turn his thoughts towards supper (he had apparently eaten nothing since his release) and after a night's rest might wake up in a frame of mind more in keeping with the day, which happened to be Christmas. However, though still shaking blood out of his beak, his lust for battle was unappeased and as evening fell he and the Yellow-mantle were at it again as hard as ever. Next morning he renewed the combat and

kept it up with unflagging zeal the whole day through. On the third day he tried a skirmish with the Barnards, but his tactics lacked the joyous zest of his previous encounters, and as the morning wore on it was clear that he was not feeling quite happy. Although not normally a tame bird he kept following me about and flying right up to me, almost settling on my arm, while at intervals he went into the feeding box and sat by the food dish, though he did not try to touch the seed. It was not difficult to guess the nature of his trouble: his lacerated tongue was by now so swollen and sore that he could not eat a thing and he was getting desperately hungry. By one of those strange uncanny flashes of abnormal intelligence that animals sometimes show, he was convinced that I was able to help him. "Look here," his actions said as plain as words, "I'm in the devil of a fix; I'm simply starving and yet I can't get a scrap of food down. Can't you do anything about it?" I opened the door of his aviary—a low, awkward door—and suggested that he should come inside, which he did almost as quickly as an obedient dog. There he was easily caught and transferred to a cage, and provided with sop, finely chewed peanuts, crushed apple, and grapes. But even with this assistance he had a very bad time, and for some days I thought he would die. Grape juice was almost the only thing he could get down and his breast bone grew as sharp as a knife and he became too weak to fly. Even at his worst, however, he could still whistle a challenge if he heard one of his late rivals in the distance. Gradually, however, he began to mend, and though it was quite five weeks before he could eat seed again, as soon as this Arctic spell is over he will be fit to go back to the aviary. But has he not an odd idea of pleasure? With the whole world to fly about in; with no recognized mate or territory to defend; with attractive female society in the opposite direction, why must he impose his presence on those few yards of space where two more powerful rivals emphatically did not desire him and continue to impose it, even after receiving an almost fatal wound, for twenty-four hours, until sheer exhaustion compelled him to desist?

THE CALL OF THE WILD

By JAMES B. HOUSDEN

(Concluded from p. 48)

The roads in Southern Texas are very good, but we often left them to wander in the primeval forest. On either side of our track stretched the forest of marvellous beauty, a veritable fairyland and paradise for birds. We often found along the tracks beautifully marked tortoises and turtles, and on one occasion a Mocking-bird fighting a Road-runner, both screaming and making a great noise. Both birds had nests nearby. The Road-runner is a bird the size of a small Pheasant, and its nest contained eight beautiful large white eggs. Some distance along the same track we found another nest with eggs, which the hen bird was loth to leave. These birds were plentiful, and could sometimes be seen teasing a rattlesnake. On our long trips we got quite familiar with this shy, long-tailed bird and its swift but odd loping wobble; if while running he wants to stop quickly, he sticks his long tail straight out.

As we journeyed through this evergreen forest of giant cotton-trees, my companion suddenly pulled the car to one side: we had almost run over a large snake. We returned the same way later in the day, and found someone had killed this snake. I left the car to examine it and found it to be the deadly Copper-head, about 5 feet in length; already it was covered with flies and red ants.

Some distance away we again looked for the beautiful albino Woodpecker, a most lovely white bird with a bright red head, which seemed to be quite tame. We often found that while sitting in the car birds took very little notice of us.

On another occasion many miles from home we visited the large estate of a millionaire. I was introduced to the owner, who was pleased to meet an Englishman interested in birds; and said that if I could catch all his Woodpeckers he would be very pleased. He had large tracts of the Pecon-trees. These birds, with various kinds of squirrels, played havoc with the pecon nuts when ripe.

A river ran through this estate, and on the banks of this I found again the Grey-tailed Cardinal. I was so anxious to find the nest that

I did not notice where I was walking, but trod in the middle of a heap of leaves, which proved to be a nest of Moccasin snakes. The young snakes darted away in all directions. We afterwards found the Cardinal's nest, with four eggs.

On another occasion we visited another large estate far away in the wilds of Texas. We rode along and found abundance of Hang-nests, Blue-birds, Swamp, and other kinds of Song-Sparrows, Humming-birds, and Road-runners, the latter quite tame. I found a number of nests and eggs of the Seven-coloured bird (Nonpareil) and many kinds of Warblers. It was a most beautiful spot, and looked as if no one ever visited it. This was not the case, however, for when walking by the side of a small lake and listening to the wild, plaintive call of the Kill-deer Plover, we came to wheel tracks and a fire, which showed clearly it was an illicit whisky still. It was certainly something we were not looking for. I was sorry to leave this beautiful spot, but my companion thought it wise to hurry back to our car, and not stay in the neighbourhood.

We were travelling one day in a very rough part of the country where we had to "blaze a new trail". We left our car in the forest, and went a long way on foot. A number of the cotton-tail and jack rabbits were running about. We came to an open space near a pool of water. Numbers of birds were here, and from a small shrub a very small bird flew out and soared high above our heads. It was the hen bird of one of the smaller kinds of Humming-birds, and had a nest of young ones. It darted back and almost struck the cap of my companion and then did the same to me, and continued to do so as long as we remained near its nesting-place. It flew so quickly we could hardly follow its movements, and certainly was a very courageous little mother bird. One never tires of watching these smallest and most exquisite birds. It is interesting to note that about twenty species of Humming-birds pass through the United States east of the Mississippi River, they may be seen as far westward as the Great Plains. Some winter in Florida, but the majority pass to the West Indies, and through Eastern Mexico into Central Mexico.

In the wilds of Texas Humming-birds invariably possess a charm which he who has the nature soul appreciates to the full.

There were four gateposts in the front of the house next to the road, the entrance to our plantation ; in the top of one of these a pair of the Long-billed Wrens built a nest and hatched several young ones. One night some small animal took the pair of Wrens and some of the young, leaving four young ones which we put under a hen Canary which had been sitting on unfertile eggs. She took to these young birds and brought them up. In the top of the next post some large wasps built a nest ; and next to this another pair of Wrens built a nest in an old tin I hung on the fence, and laid six eggs.

The largest State of U.S.A. is Texas, the Lone Star State, and some of the most interesting birds met with are the Curve-bill Thrasher, Western Meadow-lark, Texas Horned Lark, Scissor-tailed Flycatcher, Green Jay, Florida Blue Jay, Carolina Wren, Golden-front Woodpecker, White-rumped Shrike, Dwarf Cowbird, Texas Wren, Inca Dove, Western and Mourning Dove.

Something amusing occurred soon after I arrived in Southern Texas. A native boy brought to the house a fine specimen of the Horned Frog. He had kept it, as far as I could understand, near an ants' nest, tied with a piece of string to one of its hind legs. I told him I did not want it. The poor boy looked so disappointed, and said, " He thort I'de like to take it to U'rope." I rewarded him, and he promised to let it go. Soon afterwards another boy arrived with two scorpions in a glass bottle, and another boy brought some live crayfish. I could have had Tarantula spiders, large butterflies, and other insects. A day or two later another boy brought me a young Mexican Dove, saying it had fallen out of its nest and he had found it under the tree. Another boy with the same story. It was very interesting to examine these young birds, and then I sent them back by the boys who brought them.

The secret was that I had a box of Texas Candies. The last boy who came had climbed up a tall tree for a nest of the Baltimore Oriole containing eggs. He took the nest and in his descent put the eggs in his mouth and unfortunately broke them all. After this my box was empty, and no more young birds or curious insects were brought.

All the time I was in Southern Texas I slept on the sleeping porch in the open. A large Californian dog always slept on a mat near me for protection. One night I was awakened by noises on the tin roof

over my head. I thought it was human footsteps, but found it was a pair of 'coons (racoons); another night some skunks paid a visit, but I always felt safe with my faithful watchdog.

I was always careful to examine my bed before retiring, to see that it did not contain snakes or scorpions. I have found the latter in my room, and another member of the family who did not take precautions was severely bitten one night.

In Texas no one is allowed to keep native birds in cages. Some time since the police made a raid on the Mexican quarter of the town, and seized a number of birds, mostly Cardinals; they took all the cages to one of the parks, liberated the birds and destroyed the cages.

One day, near one of the lakes, I saw resting on a telegraph wire what I took to be a long row of Humming-birds, though I knew these little birds very seldom rested there; on getting nearer I found they were large, brilliant dragon-flies, looking exactly like Humming-birds.

Red Cardinals were very plentiful near our station, and a nurseryman often captured them in a patent Sparrow trap set for the English Sparrow, which is regarded as a pest and can be trapped all the year round. When taken out the Red bird would cling to and bite the fingers of the one who gave it its liberty before flying away.

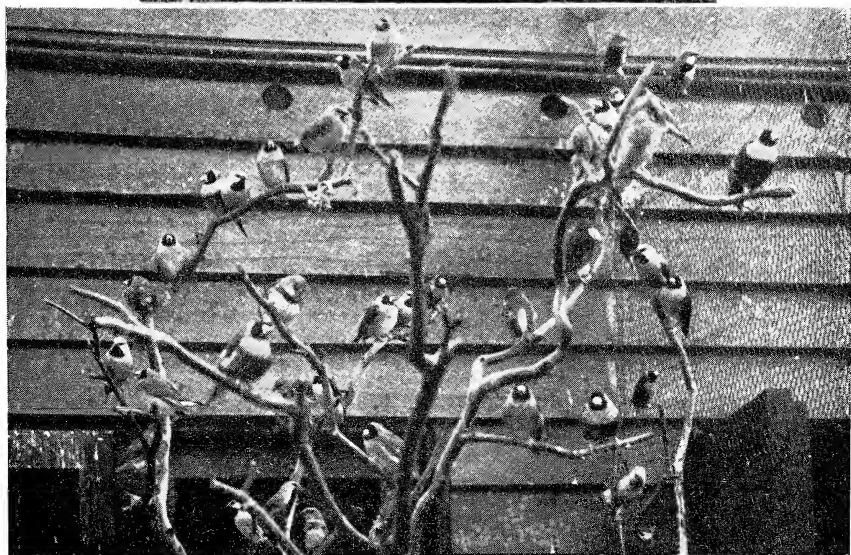
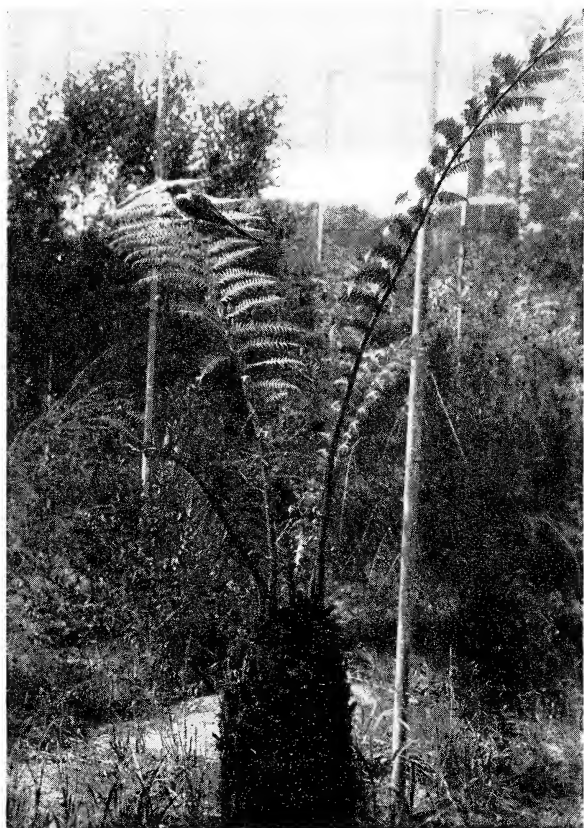
One could write much more of our journeys in the wilds of Southern Texas, with its beautiful country and interesting birds.

MR. S. HARVEY'S AVIARIES IN ADELAIDE

Mr. C. H. A. Lienau writes from Adelaide: "I am sending you some snapshots I have taken of Mr. S. Harvey's new aviaries at Kensington Gardens, Adelaide. He has recently moved to a new house and has erected magnificent aviaries which are quite the best of those privately owned in the Commonwealth.

"The bird resting on the frond of the tree-fern is a Royal Starling, whose brilliant plumage contrasted well with the pale green of the tree-fern.

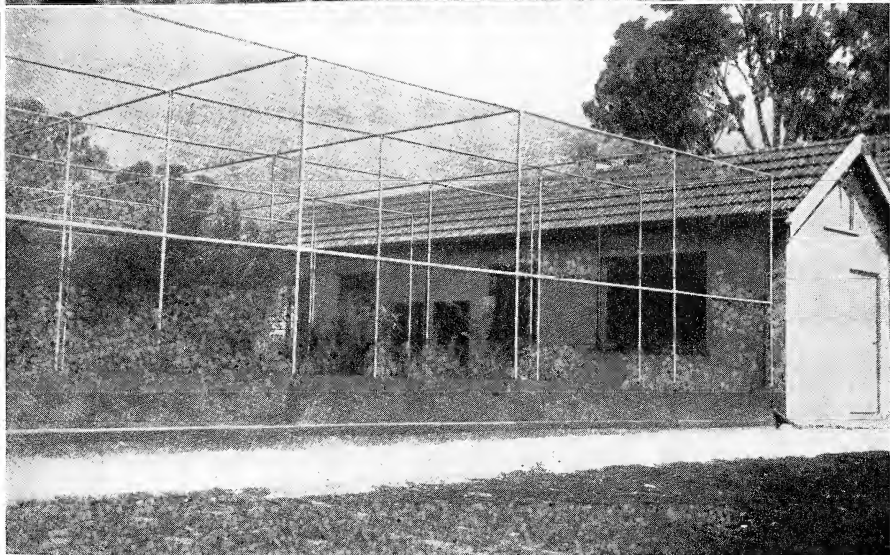
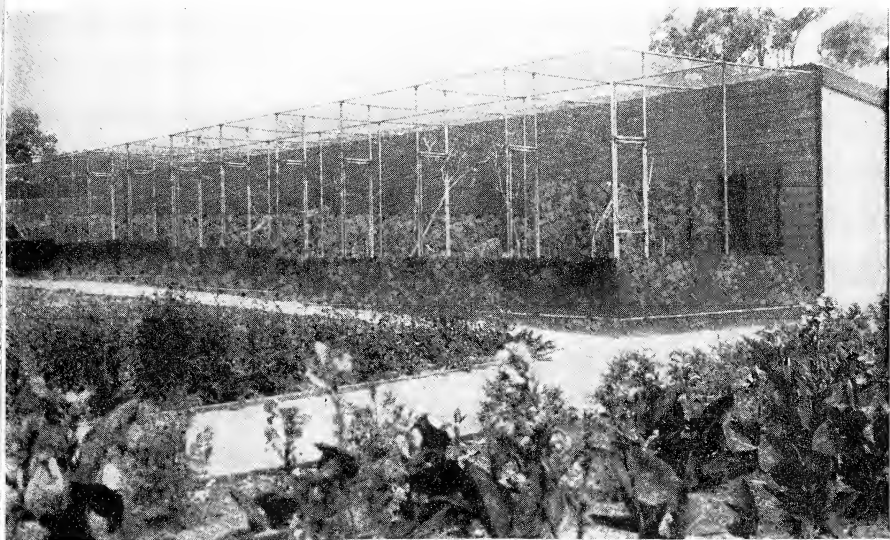
"The group of birds in No. 2 include Red- and Black-headed, Gouldians, Long-tailed and Masked Grassfinches, Spotted-sided (Diamond) Finches, Fijian and Red-headed Parrot Finches.



Photos, C. H. A. Lienau.

MR. HARVEY'S AVIARIES, ADELAIDE. FIGS. 1 AND 2.

[To face p. 96.]



Photos, C. H. A. Lienau.
MR. HARVEY'S AVIARIES, ADELAIDE. FIGS. 3 AND 4.

"The breeding aviaries are tenanted by many rare specimens, one pair in each, and each of the large flight aviaries has its own group of birds. In one are all the smaller Finches, Waxbills, etc.; in another Weavers, Whydahs and allied species find a home, and in a third insectivorous and frugivorous birds disport themselves.

"The photos represent:—

"(1) Tree-fern growing in aviary, with Royal Starling on a frond.

"(2) Group of Australian Grass-Finches.

"(3) Series of twelve smaller breeding aviaries, each division occupied by one breeding pair of birds, including Princess Alexandra, Golden-shouldered, Hooded, Turquoise and Elegant Parrakeets, Masked and Black-cheeked Lovebirds, Spree Starlings, Fijian Parrot-finches, etc. Each flight is $12 \times 6 \times 8$ feet high with warm enclosed building 6 feet square.

"(4) One of three large flight aviaries, each of which is $60 \times 25 \times 12$ feet high and has a warm enclosed portion 12 feet square. Native plants and shrubs grow in profusion and make ideal nesting spots for the birds."

CORRESPONDENCE

WATERFOWL, ETC., IN THE COLD WEATHER

SIR,—Possibly these notes may be of interest for the AVICULTURAL MAGAZINE. The manner in which our Ducks and Geese, forty-three varieties, have come through this extraordinary hard winter, is perhaps of interest to some readers. The ponds froze over on 28th December, and are still frozen on this day, 26th February. On the 4th February four days' thaw came, but soon went back to cold. Snow lay some 6 inches deep for eight days and, after a thaw, has returned and is slightly deeper now. Ducks remained all day and night on the water and I have kept small open spaces at the edge of which they have been fed. Feeding consisted of wheat every day with a meal once a week of biscuit and beef, green food, in the shape of thousand-headed kales given *ad lib.*, and also grit placed on the ice beside them. We are situated

some 200 feet above sea-level and 14 miles from Perth. There has not been a single death amongst the foreign Ducks, but nearly all the Pochard and Tufted died fairly soon, though Red-heads, Rosy-billed, Red-crested, Canvas-back, and White-eyed Pochard seem none the worse. There also have been no deaths among the surface feeders, either British or foreign. The Mandarins evidently, from the way they behave, feel the cold least of all the Duck, and the Upland feel it least amongst the Geese. A Cereopsis had a toe frostbitten, and even Greylag sat with legs drawn up on the coldest days, but Blue Snow seemed like the Upland, fairly immune to cold. To give an idea of the conditions, I should mention that of course all native Duck and Geese left us long ago for tidal waters, and the Coots that remained got so weak as to allow one to pick them up. In the garden, in an aviary unheated and open on one side, Masked Lovebirds have nested throughout the winter, bringing out a brood about the end of December, two of which they reared safely and are now again sitting on eggs.

I think probably we are about as far north as anyone who keeps the number of species we do, so have had about as bad a winter as it is possible to have.

FIFE.

J. C. LAIDLAY.

INHERITANCE OF COLOURS IN BUDGERIGARS

SIR,—I think that someone ought to answer Mr. Bradshaw's article in last month's Magazine. Many of your readers are more interested in Foreign Birds than in Budgerigars and, as they have not studied this subject of colour-breeding, they may be misled by what Mr. Bradshaw says, and thus valuable opportunities of producing new colours in other birds may be lost.

To begin with, Mr. Bradshaw attributes to the "Theorists" an amount of obstinacy which they are far from possessing. I have yet to meet the theorist who maintains that all about colour-breeding has already been discovered. The Germans are, before all others, "The Theorists," and as an example of their willingness to hear all sides of the question let me tell Mr. Bradshaw the D.W.V. (which is the German for B.C.) has asked Dr. Duncker to reprint his statistics and con-

clusions on colour-breeding and Mendelism, and that he has consented to do so. He has written, however, to all members of the D.W.V. and told them that he wishes to publish *their* results as well as his own "whether they speak for or against my theory".

Secondly, some of Mr. Bradshaw's statements are not correct. For instance he writes that "theorists hold that the three factors F.O.B. are able to account for everything that happens in breeding the birds". I should like to call his attention to what Dr. Duncker writes in *Vögel ferner Länder* or to his remark on p. 6 of the Fifth B.C. Bulletin "Very likely there is a fourth factor responsible for it." Moreover I can send Mr. Bradshaw a letter written to me last month by Konsul General Cremer in which he mentions a possible fifth factor, for which he is now experimenting and to help which experiment I am sending him a bird.

I am anxious that Mr. Bradshaw should not think that I doubt his statements about the failure of the F's, O's and B's in his aviary. I know of an excellent aviary not far from here where the breeder produces whites in the most unexpected nests, just as a conjuror does pigeons out of a top hat. Such exceptions are most interesting and they show us that much still remains to be discovered and that we have not reached, and I hope shall not for many years reach, the end of this most fascinating hobby. But I am a theorist myself in a mild way, and out of hundreds of coloured birds bred by me during the last two or three years I can count the birds which have broken the theorists' rules on one hand. I began colour-breeding in 1923 with a few *common* olives and yellows, a pair of BB greens, four sky-blues and a husband who had a little knowledge of Mendel's first figure. By sticking faithfully to Mendel at first, and later to the F's, O's and B's, I have developed my own strains of cobalts, mauves and whites, while keeping my sky-blues pure in colour. To show Mr. Bradshaw that he is wrong again when he says that "he does not see how the breeder of Exhibition Budgerigars can gain any material advantage from the application of the theories" I may be forgiven for boasting that I won with my own strains: First for mauves, First for cobalts, Third for whites and First for sky-blues at the exhibition at the Crystal Palace last month.

(MRS.) D. E. WALL.

INFLUENCE OF SOIL ON THE HEALTH OF BIRDS

SIR,—The influence of soil on the health of the inmates of our aviaries is a subject of considerable fascination, and one very little understood. For those obliged to forego the mobile aviaries advocated by the Marquess of Tavistock, who are tied to fixed foundations, my own experience may be of interest. My large aviaries for Parrots and Crow-like birds, have rested for about twenty years on the same bed of impervious clay. The greater part is exposed and nourishes a valiant, if ragged, crop of coarse grass interspersed with anthills, the remainder being of concrete. In these aviaries, which are decidedly on the large side, and not over-populated, mortality has always been extremely low. Cockatoos have bred during several years in rough barrels slung from the roof under cover, and among other successful breeders have been Ringnecks, Cockatiels and Abyssinian Lovebirds. Certainly all these are hardy types, but there have been no cases of infertility or rickets.

I am now wondering if the impervious clay soil has contributed at all to this immunity, and whether the malignant organisms, if present, fail to effect a lodgment in the subsoil, and, owing to the considerable slope of the ground, are merely washed away.

Pasteur, in his world-famous research on anthrax, about the year 1878, found that if an infected sheep was buried in a field to which a flock of healthy sheep were introduced, these sheep remained sound for a few years and then became infected. He came to the conclusion that the organism reached the flock from the buried sheep and that the carrier was the earthworm, which alone could in time penetrate to the carcase.

Supposing that the earthworm might be a carrier of infection, I have seen to it that they got short shrift, heavy doses of salt, alternately with Carter's Worm Killer, doing the trick. It would be of interest if aviculturists would supply data as to the nature of their soil, especially in those districts where mortality is severe.

The evidence I have set out, in my own case, about clay and worms, is of course quite negative, but might be worth while following up.

M. T. ALLEN, F.Z.S.

MR. SPEDAN LEWIS' COLLECTION

SIR,—I am directed to ask you to make it known in the Magazine that though the aviaries belonging to Mr. J. S. Lewis are too unfinished to warrant an inspection by the members of the Avicultural Society *en bloc*, any member wishing to see the birds can do so by applying to me for an appointment.

The owls are at Wargrave, parrots and pheasants at the Odney Club, Cookham.

E. F. CHAWNER, Curator.

NESTING NOTES FROM THE WARGRAVE AVIARIES

SIR,—The pair of Virginian Eagle Owls (*Bubo virginianus*) which reared a young one last year have gone to nest and the hen has been sitting for a fortnight.

Much to my surprise, the last year's bird has also laid and is incubating her eggs (or egg ?) in the opposite corner to her mother. She is only eleven months old, having been hatched last April.

She was left in the same compartment, as the old birds did not object, and I thought her too young to pair up, in fact her sex was still a matter of doubt.

The Verreaux's Eagle Owls (*Bubo lacteus*) made a scrape in their inner compartment and went to nest. Unluckily the first egg came during the severe frost, and nearly cost the hen her life. She had lived eight years in the Zoological Gardens before coming into Mr. Lewis' possession.

They are again preparing to nest and this time have chosen a heap of rough dried grass and dead leaves for their nursery. They are exceedingly noisy, but not nearly as fierce as most Owls are at this time.

A pair of Ural Owls have just gone to nest in a barrel. The hen is European, the cock Chinese. They also are particularly tame birds, the cock has a habit of offering portions of rabbit or other food to his human friends, as well as his wife. His heart sometimes fails him at the last and makes him withdraw the offer, but his intention is excellent.

E. F. CHAWNER.

LOVEBIRD HYBRIDS AND THE MENDELIAN THEORY

SIR,—I notice that you suggest experiments with hybrid Lovebirds for research into the Mendelian theory. I write open to correction but my impression is that Mendel's experiments were conducted with colour or size varieties of the same species. Hybrids between different species are not, as far as my own observation goes, usually at all subject to the same laws. Either they breed true for an indefinite period, or, as generation follows generation, there is a gradual dominance of the characteristics of one of the original pure-bred parents over those of the other, until all trace of the latter is finally lost. Golden \times Amherst Pheasant hybrids, mated *inter se* for some twenty generations, finally produce birds nearly, or quite, indistinguishable from pure golden.

TAVISTOCK.

[That is so: Mendel's experiments were conducted with *varieties of the same species* and not with species crosses, but there is the question as to whether two forms that have, comparatively recently, been evolved from a common ancestor might not behave in the same way as varieties and respond to Mendel's laws of Heredity. Pheasant crosses certainly do not do so and, from what we have seen of Lovebird crosses, these probably do not do so either; but with a view to proving this definitely we would suggest that further experiments should be made by mating birds of the first cross *inter se* as well as with one of the parents.—EDITOR.]

LONGEVITY

SIR,—On p. 84 of March number there is a query about the natural life of small birds such as Waxbills. I take it that your correspondent means longevity under conditions of captivity which preclude death from natural enemies, shortage of food and water, and the perils inherent to the wild state. Assuming this, I should consider that at five years a Waxbill is quite old, and I find that this seems also a good age for Budgerigars, whereas Canaries and Goldfinches will live up to at least fourteen years with proper care and attention. The above is the result of personal experience of birds both in large cages and in outdoor aviary. Grey Waxbills at five years show every sign of old age

such as rough plumage, horny and stiff feet and a gradual loss of energy and strength. In fact, at this age in a wild state I should imagine they could not exist for long under the stress of searching for food and water.

A batch of grey Waxbills in a large indoor flight cage were all in perfect health for four years and then one by one they developed signs of old age and died. No other cause than natural decay could be attributed.

Years ago I had a Canary for fifteen years and a Goldfinch for fourteen years, both ultimately dying from sheer old age.

I have never been able to keep Budgerigars to a greater age than five years, and should be glad to hear other readers' experience, as possibly the fact that my outdoor aviary is necessarily rather sunless except in summer may be a contributing cause, although I have had grey Waxbills and red-eared Waxbills in it for four years.

W. W. SMITH.

AVICULTURAL NOTES

By THE EDITOR

We have, in the past, become so accustomed to mild winters that the recent spell of intense cold has served to remind us of what we should be prepared for during the English winter. But it is remarkable that many tropical birds have stood the test so well as they have. Most of the Parrots, for instance, appear to be absolutely hardy; Macaws, Cockatoos, Lovebirds, and Budgerigars appear to be indifferent to the temperature, but with many species there is a danger of frost-bitten feet.

Wild birds have suffered badly during the recent cold, but the reason for this has been the lack of food. Redwings are the first to die, and probably Fieldfares come next. I heard that these were dying literally in hundreds on the coasts of Devon and Cornwall.

Thrushes, Blackbirds, Robins, Wrens, and probably Long-tailed Tits have also suffered badly.

During the severest cold a Woodpigeon was sitting on eggs in a tree in the London Zoo, but she was unable to prevent her eggs freezing. A Cereopsis Goose hatched four eggs. Two of the goslings died at once, but the remaining two, with their parents, were driven into a shed, and have come through successfully.

No sooner had the weather improved than a pair of Crowned Lapwings made a nest of a few bits of grass, surrounded with pebbles, within a foot or so of the wire of an aviary at the Zoo. The hen laid two eggs and both birds take turns in incubating. They take no notice of the visitors, but regard a keeper in uniform with suspicion, knowing that he is the one creature who has access to their enclosure.

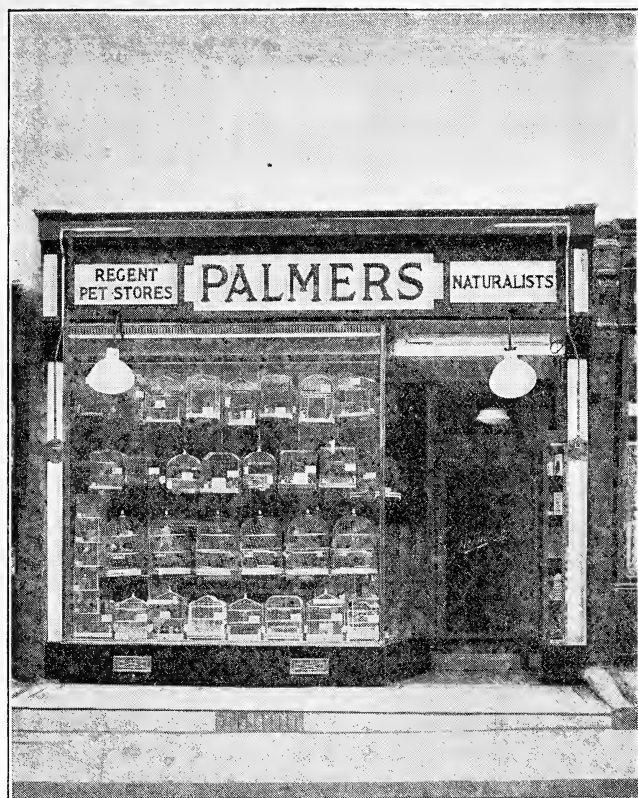
Word comes from Australia that the weather has been so hot that aviculturists have been losing their birds from sunstroke, and even wild birds and butterflies have been dying from the heat.

A MEMBERS' BADGE

Several members having expressed a desire for some form of badge that can be worn at such gatherings as bird shows, and thus enable members to recognize one another, the Council have had the matter under consideration, and have approved the design illustrated herewith.



It is made in silver, and can be worn as a brooch by a lady, or pinned on the coat of a man. The badge is made by Messrs. Thomas Fattorini (Birmingham), Ltd., of Trafalgar Works, Hockley Street, Birmingham, and can be supplied by them for 3s. 6d.



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- MRS. MAITLAND-WILSON, Little Tew Lodge, Enstone, Oxon. Proposed by G. Elphick.
- MRS. F. LETHABY MORGAN, 12 Berkeley Square, Clifton, Bristol. Proposed by C. Best.
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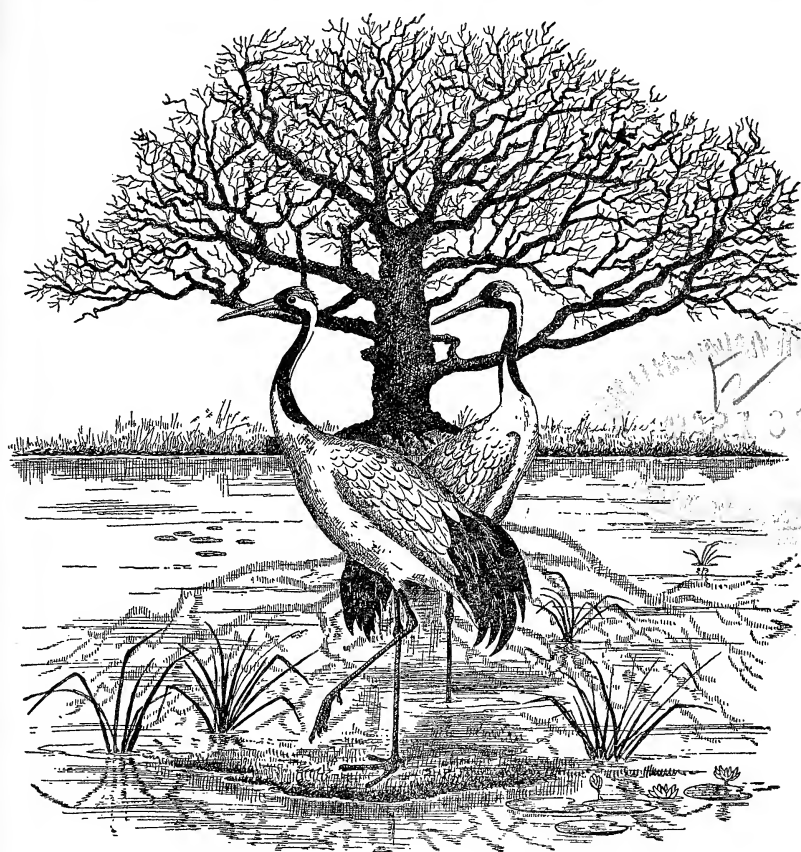
MR. and MRS. EZRA very kindly invite all members of the Avicultural Society to spend the afternoon of Saturday, 25th May, at Foxwarren Park, Cobham, Surrey, and hope that all will come.

The motor will leave 17 Knightsbridge (two doors west of Hyde Park Tube Station) at 2 o'clock.

Those who intend to be present are requested to notify the Hon. Secretary, MISS KNOBEL, at 32 Tavistock Square, W.C.1, not later than 20th May, so as to enable her to make the necessary arrangements for conveyance.

kg

THE Avicultural Magazine



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THE AVICULTURAL SOCIETY.

FOUNDED 1894

NOTICE TO MEMBERS

The Subscription to the Avicultural Society is £1 per annum, due on the 1st of January in each year, and is payable in advance. The entrance fee is 10/0. The *Avicultural Magazine* is sent free to members monthly. Members joining at any time during the year are entitled to the back numbers for the current year, on the payment of entrance fee and subscription.

ALL SUBSCRIPTIONS SHOULD BE SENT TO THE HONORARY SECRETARY AND TREASURER, MISS KNOBEL, 32 Tavistock Square, London, W.C.1.

All Queries respecting Birds (except post-mortem cases) and all other correspondence should be sent to the Hon. Secretary, at the above address. **Any change of address should be notified to her.**

POST-MORTEM EXAMINATIONS.

Rule 1.—A short account of the illness should accompany the specimen. All birds to be sent as fresh as possible to Mr. C. H. HICKS, The Prosectorium, The Zoological Society of London, Regent's Park, London, N.W. 8.

Rule 2.—A stamped addressed envelope must be enclosed with the bird.

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Red-crowned Wart-Pigeon Ad & juv.
Alectroenas pulcherrima.

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF
THE AVICULTURAL SOCIETY
FOR THE STUDY OF
FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

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MAY, 1929.

THE RED-CROWNED WART PIGEON

By J. DELACOUR

Amongst the Pigeons, the *Alectraenas* are certainly the most curious. They constitute a small genus of Fruit Pigeons composed of five species inhabiting the Islands of the Indian Ocean ; one inhabiting Madagascar (*A. madagascariensis*), another the Comoro Islands (*A. sganzini*), a third Aldabra Island (*A. minor*). The fourth species (*A. nitidissima*) lived in Mauritius, but is now extinct.

The fifth species, the Red-crowned Wart Pigeon (*A. pulcherrima*) is an inhabitant of the Seychelles. This is a bird of the size of a Barbary Dove but with a shorter tail. Its grey feet and short strong legs suit it for a purely arboreal life.

The other species differ in form and the arrangement and intensity of their colours. The species that formerly inhabited Mauritius was the most beautiful, but only three specimens of this are known.

The species, of which a coloured plate appears herewith, feeds upon various fruits and berries. It is protected in its own country and is still to be found in fair numbers, but the rapid extension of rubber culture is diminishing its native forest.

It appears that this species was formerly frequently imported, but in recent years it has been very rare in Europe.

In the spring of 1914 I received at Villers-Brittonneux four of these Pigeons, three males and one female. They were in fairly good condition in spite of the fatigue of the journey, during which they had been badly fed. In time they recovered, and I exhibited two of them at an exhibition in June, 1914. They recovered to such an extent that at the end of July I found the cage upset and one of the males violently fighting his companions. This seemed extraordinary, as these Pigeons had appeared most peaceable up to then. I picked up the two males and placed them in another cage, but the male continued to chase the female while the other two continued to fight. I was obliged to isolate each bird. Later I tried the female with each bird in turn, but without success, and she would have been killed had I left them together.

Later a male and female, kept in separate compartments, who had shown great aversion to one another, suddenly became friendly, and the female was seen to approach the male with pieces of hay in her beak. I then had the idea of opening the intervening door, upon which the birds approached one another and soon mated. Two days later an egg was laid in a basket into which the Pigeons had carried pieces of straw. This egg was somewhat elongated and misshapen with a thin shell. The birds sat steadily, taking turns on the nest, but the egg was found to be clear. On 15th June, 1917, the Pigeon laid another egg in a basket fixed on a young tree close to the side of the aviary, where the constant passing of visitors disturbed the birds, and they abandoned the nest.

To prevent a similar accident occurring again, I placed the birds in a much larger aviary planted with bushy trees, in which I fixed baskets. During the first days of August an egg was laid in a very small nest in the highest tree. I did not often look into the nest for fear of disturbing the birds, but on 25th August I perceived that it contained a young bird several days old, much like the young of any ordinary Pigeon. I am unable to state the exact period of incubation, but believe it to have been about twenty-eight days. The young one grew rapidly and was completely fledged and left the nest on 12th September, perching on a branch for the night with its parents. They reared it on their ordinary diet of boiled potatoes, bruised hemp,

boiled rice, and banana. The young bird did not seem frightened if approached. During the incubation period and the rearing of the young the weather was very wet and cold, and a piece of matting placed on the aviary above the nest kept it dry.

It has been stated that the species lays two eggs at a sitting, but, although it is possible that it does so in the *Segchelles*, with me, on three occasions, only one egg was laid. The first plumage of the young is altogether different from that of the adult, and resembles that of the young of many of the *graminivorous Pigeons* and is also somewhat like them in form, with the exception of a shorter beak, larger and stronger feet, and the general form more compact. The young bird is illustrated in the plate. Unfortunately my *Red-crowned Pigeons* were destroyed, with all my other birds, in the spring of 1918, and no others have been imported since.

EFFECT OF THE RECENT SEVERE WEATHER ON FOREIGN BIRDS

By THE MARQUESS OF TAVISTOCK

The long spell of intense cold from which we have suffered is likely to have taught members of the *Avicultural Society* lessons, unpleasant or otherwise, as to the power of foreign birds to withstand Arctic conditions. My worst trouble, unforeseen and unguarded against until too late, has been a bad outbreak of frost-bitten toes among the *Asiatic Parrakeets*. *Indian Ringnecks*, *Alexandrines*, *Malabars* and *Layards* have all suffered. In the worst cases the greater part of a toe or toes has been affected, the birds adding to the damage by biting their feet. A *lutino-bred Ringneck*, mother of the only *lutino* young one I have ever produced, has lost so much of her toes that I fear she is permanently spoiled for breeding, and my old *lutino Alexandrine* is another bad case. Where the attack has been less severe sores have appeared on the toes, and soon healed.

Unfortunately the birds' bodies were so much less sensitive to cold than their feet that they never betrayed the mischief by looking miserable at the time that it was being done.

It is rather strange that *Palæornidæ* and *Tanygnathi* should have

come off so much worse than the rest. Fischer's Lovebirds were slightly affected, but an African Grey in the most exposed aviary of all was perfectly happy, and her large fleshy feet received no damage at all. The Derbyan Parrakeets did not suffer in their feet like the other members of their genus, but a cock, a rather weakly bird, was one of the two deaths in the collection from chill.

The Amazons came through quite safely, and so did the Queen of Bavaria Conures with the exception of one hen, an inveterate feather-plucker, who has slight sores on her feet, having foolishly deprived herself of every vestige of plumage in that part of her person against which she might have warmed her toes.

None of the Australian Parrakeets suffered, neither did the Norfolk Islands. Two Crimson-wings in a neighbour's rather small and exposed aviary had to be taken in with foot trouble, but my old cock at liberty and his family in aviaries received no harm. The Black Cockatoos (*Calyptrorhynchus*) were also unharmed by the frost.

Masked Lovebirds at liberty remained very cheerful. This species, by the way, seems a promising liberty bird. Unlike its relative, the Black-cheeked Lovebird, it appears to be a good stayer and as it always roosts in a log it is safe from Owls if the entrance holes to the logs are not more than $1\frac{1}{2}$ inches in diameter. Enough logs must be provided for young birds as well as old ones, and Starlings must be shot if they try to usurp the nests. I have not found these Lovebirds in any way destructive in the garden. Of the delicate birds with heated shelters, the three Superb Tanagers came through with flying colours, though on the worst nights the shelter temperatures must have been well below 50° Fahrenheit. Clearly this genus is not so sensitive to cold as many believe. If they can be provided with a snug shelter with a living-room temperature, a big flight and correct feeding, they will do better out of doors than many Waxbills that are commonly described as hardy.

The Purple Sunbirds have done equally well under the same conditions.

The cock Blue-crowned Hanging Parrot died the first really cold night, although his shelter was one of the cosiest of all. His mate has survived. The hen Golden-backed Hanging Parrot unfortunately

died of kidney disease during a mild spell before the severe weather began. The cock came through in the best of condition, and was often in the flight on very bitter days.

The little Beautiful Lorikeet has also taken no harm, rather to my surprise. It is amazing the contrast between what some birds will stand when they have been carefully acclimatized and what they need when first imported. *Hypocharmosyna placens* is intensely fragile on first arrival and must be coddled at an even temperature of 85° Fahrenheit for many weeks, even when it is plump and in good feather.

A cock Yellow-bellied Parrakeet which spent part of the winter of 1927–8 at liberty ceased to return for food early in November, and for nearly four months was not seen at all, although an occasional rumour indicated that he might be still in the county! At the end of February he was seen about half a mile away. A fortnight later I had one distant glimpse of him flying off from the outskirts of the garden. Now he is back almost daily as the warmer weather brings a reawakened interest in his wife and in domestic affairs. It is strange to think that when frost and snow were killing our native birds an Australasian was not even hungry enough to come back where he knew that food awaited him!

THE BRONZE-WINGED DOVES AND PIGEONS

By T. H. NEWMAN

The sub-family containing the true Bronze-winged Doves and Pigeons formerly known as the *Phabinae* must now, most unfortunately, be called the *Turturinae*, as the real genus *Turtur* is the oldest name in this group. They are mostly somewhat stoutly built birds with metallic spots or patches on the wings; they spend much time on the ground, indeed some of the genera are the most terrestrial birds of the whole order. They can be fed on millet, dari and a little hemp, while wheat and maize can be added for the larger species. Earthworms with smooth caterpillar and other insects are freely eaten by some of the larger Bronze-wings. They are confined to the Old World.

THE LONG-TAILED CAPE DOVE, also known as the HARLEQUIN, MASKED or NAMAQUA DOVE (*Ena capensis*). This graceful little Dove

is common in wooded steppes, in gardens round farms and cattle kraals, running rapidly on the ground in search of the grains and seeds on which it feeds. It has a long slender tail and when hovering looks like a beautiful foreign butterfly, but when alarmed its flight is swift and arrow-like. In captivity it often loses its natural sprightliness, spending its time motionless perched on some twig or other perch, becoming dull and over-fed. It has been frequently bred, and the young are easy to rear if they can be prevented from jumping out of the nest at a too early age. The eggs are creamy-buff. Male: Upper parts brownish-grey, more ashy on crown, neck and wing-coverts, the latter with large steel-blue patches, quills cinnamon, lower back brownish buff bordered with two black bands, front part of head and entire throat black, breast and abdomen white; bill red at base with yellow tip. Female has no black on head and throat and is duller. Habitat: Africa from Senegal and the Egyptian Sudan south to the Cape, also Socotra and Arabia, Red Sea coast and Aden. The bird from Madagascar differs slightly.

THE TAMBOURINE DOVE (*Tympanistria tympanistria*) is a very charming species. In South Africa it inhabits wooded districts near the coast and feeds on fallen seeds, being especially fond of those of the castor oil plant, it also eats insects and small slugs and snails; its flight is rapid. It does not seem to have ever been very freely imported to this country. I have seen a good many in France. It was first bred by the late Dr. A. G. Butler and an interesting account appeared in THE AVICULTURAL MAGAZINE, IV, 2, p. 307. A pair of the young came into my possession, but I did not keep them very long. In captivity they seem to lose much of their natural activity, spending much time motionless on a branch. The eggs are creamy-white, and, like other African Bronze-wings, it is very peaceful and will live with other allied species in perfect amity. It derives its name from its remarkable notes, which sound rather like a tom-tom, beginning slowly "Hoo-hoo-hoo-hoo, hoo-hoo-hoo-hoo" and ending in a rattling "gr-r-r-r-r-r-r-r". The male has the upper surface brownish-grey; inner wing-coverts and secondaries spotted with very dark green or purple; primaries cinnamon, the first one attenuated at the tip; forehead eyebrow stripes, cheeks and entire under surface pure white.

The female has the white parts more greyish and the wing-spots without the metallic shading. Habitat: Africa, South of the Zambesi. A darker race (*fraseri*) is found from Sierra Leone, Lake Chad and Abyssinia south to the Zambesi, also in the Comoro Island and Madagascar.

THE SAPPHIRE-SPOTTED Dove (*Turtur afer*). I have ventured to give this species a new vernacular name instead of the more usual Blue- or Purple-spotted one as the very closely related species with green spots has long been known as the Emerald-spotted Dove. It was to this African species that the generic name *Turtur* was first given by Boddaert in 1783, so that it is the original Turtle-dove, although by no means closely allied to the birds known by that name at the present time. The Sapphire-spotted Dove resembles the Tambourine in habits, but frequents more open ground such as broken bush and clearings near rivers and obtains its food, consisting chiefly of grass seeds, on the ground. Its note sounds like "Tor, tor-tor, tor-tor-tor, tor-tor-tor-tor-tor-tor-tor", in a gradually halting scale. They nest in bushes or low trees. Upper surface earthy-brown, two black belts across the lower back; upper tail-coverts tipped with black, inner median coverts and some of the scapula ornamented with bold sapphire-blue spots; crown leaden-grey, white on forehead; neck and breast vinous, fading to buffish-white on abdomen; bill dusky, with broad orange tip. Female slightly smaller and a trifle paler. Habitat: From Gambia to Portuguese Guinea. The species and races of the genus *Turtur* have only lately been differentiated, so that it is impossible to state which forms have been so far imported. A darker race of *afer* known as *Kilimensis*¹ comes from Sierra Leone to Angola and East to Uganda, Kenya, Nyasaland, South Rhodesia and the Zambesi valley, while a paler form *mearnsi* inhabits Abyssinia and Shoa highlands.

THE BLACK-BILLED SAPPHIRE-SPOTTED DOVE (*T. abyssinicus*) is very like *afer*, differing chiefly by having the bill black; it has the same blue spots on the wings. Habitat: Abyssinia and Erithea, with a possibly distinct race from the Sudan west to Lake Chad and the Gold Coast Colony.

¹ Mr. G. L. Bates, *Bull. B.O.C.*, xlix, p. 35, 1928, considers this to be a synonym of true *afer*.—T. H. N.

THE EMERALD-SPOTTED DOVE (*T. chalcospilos*). Mr. Paget-Wilkes in *The Ibis*, p. 732, 1928, writing on the Birds south of Lake Nyasa says: "Resident and breeding. This species is local, but abundant where it does occur . . . They seem to frequent a dry low-level type of country . . . The breeding period seems to be during the winter and slightly earlier than the *Streptopeliinae*, although I once found eggs in late September. They are cream-coloured ovals, and the nest more substantial than one would be led to expect; it is rarely placed at any great height from the ground, the highest found being about ten feet up in a bamboo thicket." The note, according to Dr. A. G. Butler, sounds like "Hoo-hoo, hoo-hoo, hoo-hoo-hoo, hoo, hoo, hoo, hoo, hoo", very like that of the Maiden Dove. It has been bred in the London Zoological Gardens. Differs from *afer* by its smaller size, greyer upper surface and vinous colour of underparts, deeper and more extended on abdomen and the metallic spots on the wings deep emerald-green to golden-green; the bill is dull black. Habitat: South and East Africa from Abyssinia and Somaliland to the Cape Province, also Angola and Belgian Congo. A darker race *volkmanni* from the South-West African Protectorate, east to Lake Ngami.

THE AUSTRALIAN GREEN-WINGED DOVE (*Chalcophaps chrysochlora*) is an inhabitant of the bush, being never seen in the open parts of the country; its habits are terrestrial, feeding on fallen seeds and fruits. When flushed it flies quickly through the scrub to no great distance, readily eluding pursuit by pitching suddenly to the ground and remaining so quiet that it can rarely be discovered. It has been freely but irregularly imported; it was first bred by Mr. Seth-Smith in 1906. Dr. Butler kindly gave me a hen bird which I kept with a cock of the India species, but they did not nest, I am not sure that they even mated. The cock bird has the head, neck, and under parts rich vinous with a chocolate tone, a purplish tint on back of head and hind neck; back and wings emerald green with a white band on the bend of the latter; lower back dark with two grey bands; tail grey with black band at tip; bill bright red. The hen is slightly duller than the cock, the patch on bend of wing is greyish, the purplish tint on hind neck is almost absent and the tail is chestnut brown with black subterminal band. The typical bird is found in South Queensland, New South Wales and

Victoria, a form with slightly longer bill (*longirostris*) from Northern Territory, a third Australian form (*rogersi*), paler with the colour on the nape less pronounced from North Queensland. It is to this form that the bird figured in THE AVICULTURAL MAGAZINE, V, 3, p. 149, belongs. Other races from Timor, New Caledonia and New Hebrides.

THE INDIAN GREEN-WINGED DOVE (*C. indica*). This charming little Dove is common in damp evergreen forests, also in deciduous forest and bamboo-jungle, and is partial to the banks of the smaller forest-streams; they are very active on the ground, feeding on vegetable matter, but are very fond of white ants and will eat worms, also soft fruits. The nest, better put together than most species, is placed in high bushes or small saplings from five to ten feet from the ground, the eggs being pale cream to a fawn shade. The late Miss Alderson describes how she bred the species in THE AVICULTURAL MAGAZINE, V, 3, p. 151. Differs chiefly from the Australian species by having the forehead and eyebrow-streak white, shading into bluish-leadon on crown and nape, no conspicuous white band on bend of wing. Habitat: India to Celebes and some Papuan Islands and New Guinea. The bird from Ceylon has lately been called *robinsoni* from its smaller size and well-marked blue-grey streak down the back of the neck.

THE CHRISTMAS ISLAND GREEN-WINGED DOVE (*C. i. natalis*) is another sub-species of the Indian bird; the cock scarcely differs from the typical form, but the hen bird has the neck, upper back and breast rufous-chestnut, upper tail-coverts and central tail feathers pure cinnamon. A single female specimen reached the Gardens at Regent's Park in 1903. She laid eggs when mated I think with an Indian bird. Dr. Andrews tells us that it is by far the most brightly coloured bird on Christmas Island, usually seen in pairs, but sometimes in small flocks near water. The food consists of small fruits and the nests are placed in thickets of screw-pine. The green and chestnut plumage matching very closely with the leaves and soil make the bird very difficult to see.

STEPHANI'S GREEN-WINGED DOVE (*C. stephani*). We read in the Jubilee Supplement of *The Ibis* on "The Birds of Dutch New Guinea", p. 310, that "This dainty little Dove spends all its time on the ground, only perching in the trees when alarmed. It is by no means uncommon, but being a ground-bird and living among the denser undergrowth.

it is more often to be heard getting on the wing than seen. Four specimens were purchased by the London Zoological Society in August, 1921, and Mr. Ezra has it in his beautiful aviaries at Foxwarren Park. Differs very markedly from the other two species of Green-winged Doves by having the middle of back and scapulars cinnamon-rufous with only the median and greater wing-coverts and outer webs of tertials metallic green ; the forehead of the male is pure white (dark grey in the female) abruptly defined from the colour of the crown ; tail rufous-brown. Habitat : Celebes, New Guinea and islands of Bismarck Archipelago. The bird from the Solomon Islands has been called *mortoni*, said to be larger with more extended white forehead.

THE MAIDEN DOVE (*Calopelia puella*). In the Gold Coast Colony this beautiful little Dove is rare, keeping chiefly to the thickest part of the forest. At Sierra Leone it is altogether a forest-bird, never seen in the open. It is fond of hunting about on the ground among the dead leaves. Its song is very like that of *Turtur* but louder, and Dr. Butler was doubtless quite right in placing it next to that genus. He has given us some very interesting notes in THE AVICULTURAL MAGAZINE, IV, 2, p. 251, with a coloured plate. It is a pity that this very charming and desirable species seems to be very delicate in captivity, but it is probably a question of acclimatization, and is one of the species which cannot stand the damp cold of our winters, so should be given heat during the cold season. General colour cinnamon ; head and neck cobalt-blue, forehead and throat bluish-white, lores black, inner greater wing-coverts and secondaries spotted with golden-green, the tail, which is much rounded, has the three outer pairs banded with grey and black. Female smaller but stouter, chin sordid white, throat tinged with cinnamon, not blue ; the young have the feathers of the wings barred with black. Habitat : West Africa from Sierra Leone and the Gold Coast to the Cameroon Mountains. There is a supposed different race with the wing spots metallic lake-red with a slight copper tint from Cameroon to Gaboon and Loango, east to Peko and the Vele River, known as *brehmeri*. Dr. Butler thought that most of the imported birds belonged to this form, but both are said to have been found at Efulen in Cameroon, probably the district where the two races meet.

THE WHITE-FRONTED BRONZE-WINGED PIGEON (*Henicophaps*

albifrons). Mr. Claud Grant found this extraordinary bird tolerably common in Dutch New Guinea, but very wary. It is distinctly a ground haunting species, though it often perches in the large trees. Males were showing off to the females after the manner of the Wood Pigeon. On being disturbed, they fly for a considerable distance, the flight being swift and straight considering the density and close proximity of the trees. Probably largely a fruit-eater. Two examples were purchased by and a third deposited at the London Zoological Gardens in November, 1921, sent over by the Australian Zoological Control Board ; as far as I know these are the only specimens ever imported alive. General colour slaty-grey, mantle and scapulars black with a green lustre, median and inner greater wing-coverts golden-bronze, edged with dark chestnut ; forehead white ; a very long slaty-horn coloured bill. Habitat : New Guinea and Western Papuan Islands.

THE BRONZE-WINGED PIGEON (*Phaps chalcoptera*). This fine bird is widely distributed in Australia. At Broome Hill, South-West Australia, it is common and feeds on the seeds of the acacia known as Jam Trees. It is also fond of the seeds of the Saffron-thistle. They often sit very closely on the ground, relying on their protective colouring to escape observation. Their first flight, after being disturbed, is usually a short but rapid one, to the limb of a neighbouring tree. They drink mostly about sundown, continuing to arrive until it is quite dark. The nest is placed on horizontal branches near the ground, often in hollow spouts of trees. In captivity they are very hardy, good tempered, and breed freely ; their large size and beautiful colouration make them most attractive. The male has the forehead and front part of head ochreous buff, crown greyish-brown, purplish on sides, a whitish line below the eye extending across the ear-coverts ; back of neck and upper surface grey-brown with lighter edges to feathers, outer wing-coverts with large patches of fiery-copper or metallic emerald-green according to light, inner secondaries with large patches of shining violet, changing to greenish Prussian-blue, cheeks and sides of neck bluish-ashy ; throat white, breast vinous, changing to grey on abdomen. The female lacks the buff forehead, the breast is greyish-brown without the vinous tint. The typical race inhabits South Queensland, New South Wales, Victoria, South Australia and Tasmania. A smaller and paler form

is found in Northern Australia, while the birds from South and Mid West Australia are said to be more sandy coloured above with more pink below. A coloured plate of this species appeared in the AVICULTURAL MAGAZINE for January, 1929.

THE BRUSH BRONZE-WINGED PIGEON [*P. (Cosmopelia) elegans*] is more sturdily built than the last species; it is found in low damp scrubby country, spending most of its time on the ground, where it feeds on seeds and berries. The nest is placed in a thick bush, on a fallen tree, or even on the ground. The Brush Bronze-wing is one of the prettiest members of the family, and the display of the male to the female is very effective as he raises and spreads his tail and beautiful metallic banded wings and bows up and down. It was first bred by Mr. Seth-Smith in 1904, and a full and interesting account appeared in THE AVICULTURAL MAGAZINE, III, 2, pp. 211 and 263. The male above is olivaceous-grey, the hind neck and upper back washed with chestnut; two broad fiery copper-green and purple metallic bands across the wings; forehead ochre-yellow, crown grey; a chestnut band runs from the corner of the eye to the nape, under surface grey. Female duller than male and generally without the ochre forehead. The typical race comes from Tasmania. The mainland bird known as *neglecta* is slightly larger and paler. In 1912 I reared some very handsome hybrids from a male Brush mated with a female common Bronze-wing. They were very beautiful birds, looking like a distinct species favouring mostly their mother. I think they might have bred, as they showed signs of wanting to nest, but the war prevented my continuing the experiment.

THE HARLEQUIN BRONZE-WINGED PIGEON (*Histriophaps histrionica*) is known as the Flock Pigeon in Australia on account of its sudden appearance in flocks when grass seeds are plentiful. It inhabits the open plains of the interior, nesting on the bare ground under a low bush. They fly long distances to water and have been seen to alight all over the surface, take a hasty drink and then fly away. According to Mr. Berney in *Memoirs of the Queensland Museum*, vol. ix, June, 1928, this is a disappearing species. I have never seen the bird alive, as it is rarely imported, it was bred in the London Gardens in 1866 and in France in 1881. Male upper surface cinnamon-brown, edge of wings and

primaries grey, the latter tipped with white, outer secondaries with a patch of metallic purple and green on outer webs. Tail of fourteen feathers (sixteen in *Phaps*), two central ones like the back, rest grey with blackish subterminal band and tipped with white, crown, sides of face, ear-coverts and throat jet-black; forehead, a line encircling the ear-coverts and patch on lower throat pure white, under surface grey, washed with cinnamon on flanks and under tail-coverts. Female has not got the black and white markings on the head. Habitat: Interior of New South Wales and Queensland, a slightly paler race (*alisteri*) in North-West Australia and Northern Territory.

THE WHITE-QUILLED ROCK PIGEON (*Petrophassa albipennis*) inhabits the broken sandstone ranges at the mouth of the Victoria River, being restricted to the sandstone region. They are hard to flush, but rise with a loud whirr, fly for a short distance and usually alight on bare rocks, run a few yards, and crouch down near a rock with which their colour harmonizes so well that they are difficult to detect. They nest in slight hollows lined with soft dead grass, on the ground, near a small tuft of spinifex, or stone. A single specimen was deposited in the London Zoological Gardens in February, 1910. General colour rufous-brown, the feathers with lighter edges, lores black, head and neck greyer, feathers of chin and throat tipped with white; some of the inner wing-coverts and one of the inner secondaries have a metallic coppery-violet spot; basal half of primaries pure white; feet dark brown; sexes alike. Habitat: Adjoining parts of North-West Australia and Northern Territory. A darker form (*alisteri*) inhabits West North-West Australia. A very nearly allied species with chestnut quills (*rufipennis*) lives in Northern Territory.

THE PARTRIDGE BRONZE-WINGED PIGEON (*Geophaps scripta*) is called the Squatter Pigeon in Australia and is purely a terrestrial species with the habits of a Partridge or Quail. It is of a very peaceful and gentle disposition. It moves about in small flocks and, when disturbed, the individuals scatter and endeavour to hide by squatting down near any object such as a stone, and are then difficult to see or flush. They always nest on the ground, sometimes sheltered by herbage. This is a most desirable species in captivity, being gentle and of very interesting habits, but very few seem to have been brought over alive.

I obtained a pair in 1907 and in 1908 reared two young ones and four more the following year ; a full account was printed in THE AVICULTURAL MAGAZINE for October and November, 1908. The chief points of interest seem to be that the young when hatched are not more downy than many other species of Pigeons though they leave the nest at an early age, that there is a well developed egg-tooth on the *lower* mandible as well as on the upper which is retained until it becomes worn away, and that the young begin to moult before the first plumage is complete, so that by the time the bird reaches its full size it has attained its adult plumage. General colour pale brown with paler tips to the upper wing-coverts, greater coverts with a patch of shining purple shading into green, obscured by dusky bars a narrow strip above and in front of eye, cheeks, throat and a band each side of breast white ; two black bands across the sides of the head which run into another which borders the white cheeks ; abdomen grey. Sexes alike, but the female smaller. Habitat : South Queensland and New South Wales, a larger and darker race (*bourkei*) from Western New South Wales, and a smaller and lighter coloured bird (*peninsula*) from North Queensland.

SMITH'S PARTRIDGE PIGEON (*G. smithii*) is found in flocks of from six to twenty birds, in forest country ; when flushed they fly into the nearest tree, choosing the largest part of a horizontal branch to perch on, rest a few seconds, then dash out of sight, but they often allow themselves to be nearly trodden upon before rising. The cream-coloured eggs are laid on the ground in a shallow grass-lined depression ; acacia and grass seeds are the chief articles of food. Like the last species it is seldom imported ; a pair that I had were very nice quiet birds. Very like *scripta* but smaller and more uniform brown, a large bare rosy-red space round the eye surrounded by a black line, on the centre of the breast a patch of clear grey, the feathers edged at the tip with black, giving a barred appearance. Habitat : Northern Territory, the bird from North-West Australia has been called *blaaowi* on account of its lighter coloured upper surface and yellow naked eye-space.

THE PLUMED GROUND DOVE (*Lophophaps plumifera*) is abundant on the Victoria River, Northern Territory, among rocks and hot sandy gullies and is fond of perching on a rock in the full glare of the sun ; they feed on spinifex seeds and place their eggs on the ground often

under a spinifex tussock. It is said to have been exhibited at Amsterdam, Berlin and Cologne, as well as in the London Gardens, but it is rather doubtful whether they were not really belonging to the White-bellied form next dealt with, which is certainly the bird commonly imported. General colour pale cinnamon, the neck, mantle and wing-coverts barred with brown, the latter and the scapulars grey at base ; some of the inner secondaries glossed with bronzy-purple on their outer webs, forehead and ear-coverts grey ; centre of crown with long crest feathers cinnamon ; cheeks and throat white ; chin, a line over eye and gorget black ; a greyish-white band across the chest, centre of abdomen white ; bare skin round the eyes crimson. Female similar but smaller. Habitat : Northern Territory and Queensland.

THE WHITE-BELLIED PLUMED GROUND DOVE (*L. p. leucogaster*) is only a race of *plumifera* which it represents in the great interior of Australia. They love rocky country and are strictly ground birds, assembling on the rocky sides of gorges and enjoy basking in the sun ; their colours harmonizing well with the red sand and rocks, they lay on the ground generally near a tussock of porcupine grass. This bird was imported quite freely some years before the war ; though I had three or four pairs I never got beyond a few eggs, as they are very quarrelsome ; Not more than a pair should be kept together. An account with coloured plate appeared in THE AVICULTURAL MAGAZINE, V, 2, p. 51, by Mr. Seth-Smith. Differs from the typical form by being paler with a distinct whitish band above the grey pectoral band and larger amount of white on the centre of the breast. I noticed that some of my birds had the metallic spots on the secondaries very green, while in others they were purple. Habitat : Central Australia. A third race (*pallida*) from North-West Australia is paler above than *plumifera*.

THE RED PLUMED GROUND DOVE (*L. ferruginea*), which only differs by its darker colour and absence of white on abdomen and breast-band, does not seem to have been imported. Habitat : Mid and North-West Australia.

THE CRESTED BRONZE-WINGED PIGEON (*Ocyphaps lophotes*) is always found near water, congregating in flocks in the morning and evening when they drink and scattering through the forests and scrub during the day. They build their slight, flat nests in low bushes and

trees, sometimes on a stump. This very handsome but generally pugnacious species has been very freely imported and frequently bred. I have had five or six specimens, one pair reared a young one; an odd cock which could not fly very well was so tame that it always came and cooed to me whenever I went into the aviary. But it is at liberty that this bird is at its best; it has a most rapid dashing flight accompanied by a whistling sound doubtless due to the strongly attenuated third primary. On alighting the long tail is jerked upwards. Many were turned out both at Woburn Abbey and in Regent's Park and I think also in France. Wings and back sandy grey, the former with a black subterminal band giving a barred appearance; greater wing-coverts metallic green with white borders; secondaries metallic violet shading into blue with broad white edges; head, neck and under-surface grey, long feathers of crest black. Female similar, perhaps a little smaller. Habitat: South Queensland, New South Wales, Victoria and South Australia. The bird from Mid and North-West Australia is smaller and has been called *whitlocki*, and that from Northern Territory, North Queensland and Central Australia is paler and has been distinguished by the name *stalker*.

SOME EXPERIENCES OF A NOVICE

By MISS K. COLVILLE

I wonder if your readers would care to hear some of the experiences of a complete novice in aviculture.

I started a small aviary of mixed Parrakeets last summer, in my garden. Before that I had only had a Blue-fronted Amazon Parrot, "Fergus," and "Robert", a blue and red Macaw, both very tame, and spending most of their days up fruit-trees in the garden. Fergus can talk well, and loves to be on my shoulder when I am walking or bicycling. Robert can only say a word or two, and is too heavy to carry for long on one's wrist.

Fergus has flown away three or four times in the seven years that I have had him; but generally circles round the village, alighting on the highest tree he can find, and refuses to come down till he is hungry

enough, calling out derisively at intervals "Hullo!" and "Nice boy, Fergus!"

One March he was away for a week, entirely out of sight or hearing. As I had searched the entire neighbourhood for him in vain, and there were high cold winds with sleet, I had given him up in despair; but he returned to a neighbouring tree, after six days' absence, none the worse for his adventure.

The aviary shelter is 7 feet square and 6 feet high, and the flight is about 8 feet square, and the inmates are pairs of Ringnecks, Rosellas, Redrumps, Cockatiels, and Yellow Budgerigars.

Only the Budgerigars nested last summer, but the Cockatiels are sitting now, and have six eggs, and the Ringneck hen has begun to sit, and of course the Budgerigars are hard at it.

They have all survived this extremely cold winter, on the top of the Cotswolds, with only a small-sized petrol heater in the hardest frosts. I shut them up each evening at sunset, ringing a small bell which they have now learned to obey as a signal.

When the Ringnecks arrived last June they could not fly at all, though thoroughly mature birds, and I had to fix branches as staircases to enable them to climb in and out of the shelter. Now they fly well and are in beautiful plumage, but are very timid birds.

I also have a pair of Blue Budgerigars in a large flight cage, and hope to have another small aviary this summer for them, and a new pair of Parrakeets which I have just got from Rogers, of Liverpool.

These birds are very tame, but noisy, and are some kind of Conures, but Mr. Rogers does not know exactly what kind, whether "Sun", "Jendaya", or "Carolina".

From the description given of Conures in Lord Tavistock's book, I think they are Sun Conures; but Mr. Rogers thinks they are a new variety of the Jendaya.

I will describe them as well as I can, and perhaps you would be able to tell me their exact species.

Cock: Head and body of a deep gold and orange, becoming redder on the lower breast; strong orange-red round eyes; tail green tipped with blue; wings green with blue on edges; bill dark horn, practically black; head rather large and round.

Hen : Smaller, with some green running up into the back of her head, and less red in the orange colouring.¹

The Macaw, "Robert," whom we have had fifteen years, and always believed to be a cock, suddenly laid an egg last Spring. For a month or two afterwards he (or rather she) seemed depressed and bedraggled ; but later on regained his usual health and spirits and splendid plumage. I suppose now we ought to change his name to "Colonel Barker" !

AVICULTURAL NOTES

By THE EDITOR

Members will wish to send hearty congratulations to Mr. Kell, an enthusiastic aviculturist in South Australia, on his success in breeding the Queen Alexandra Parrakeet. Two young birds have been reared, and Mr. Kell tells us that during the time the old birds were sitting and rearing the young no special food was given, their diet being canary and sunflower seed and lettuce. One youngster left the nest three days after the other, both being strong birds. The species was first bred in England by the late Mr. Hubert Astley in 1912.

The Alexandra Parrakeet is certainly one of the most lovely of all the Parrot tribe, beautiful both in shape and the delicacy of its colours and rare as it is beautiful. Its home is in the dry country of Central Australia, but its movements appear to be somewhat irregular, for one year it will appear in some numbers in a locality in which it has not been seen for many a day, remaining for a season and then departing, to be seen no more for several seasons.

When I visited Western Australia some twenty years ago, I travelled inland as far as Kalgoorlie to see the gold mines and kept an eye open for any interesting birds. I was told that the year before the Alexandra Parrakeet had been comparatively common there, but all I could find was one in a cage that had been reared from the nest. I purchased

[¹ Apparently *Aratinga solstitialis*, the Sun Conure. The Carolina Conure is extinct.—Ed.]

it after some trouble and brought it home. It was a charming bird, perfectly tame and able to articulate several words and even short sentences.

This species was named by John Gould after the late Queen, then Princess Alexandra, and he referred it to the genus *Polytelis*, where it would seem to have every right to belong, but Mr. North discovered that one feather on each wing in the adult cock was spatulate, and so he created for it the genus *Spathopterus*, but now Mr. Gregory Mathews has gone further and created yet another genus for it, and so its present name is *Northipsitta alexandrae*.

Mr. Sydney Porter has gone to the West Indies, where he has seen something of the rare Island species of Amazon Parrots. He writes from Dominica: "I have been right up into the dense virgin forests on the volcano and seen the birds nesting. There are a few left, but they are far from plentiful. I have obtained one Imperial from a native, but it was badly wounded, and I am afraid it will not live. I have two good examples of *bouqueti*, both cocks, and lost a fine hen. These are very rare, too, but I have also been to their breeding haunts. I am hoping to visit St. Vincent if I have time." We shall look forward to a very interesting account of Mr. Porter's experiences when he returns.

During 1928 Madame Lecallier had great success in breeding foreign birds in her new aviaries at Saint-Pierre-les-Elbeuf. Amongst Pheasants, 15 Elliots, 2 Siamese Firebacks, and many Golden and Common. Chinese Bamboo Partridges reared 2 broods of two and four, while of Formosan Bamboo Partridges two young were reared under a hen, the first to be reared in Europe. Of Parrakeets, 6 Barra-band, 6 Stanleys, 3 Barnards, 4 Mealy Rosellas, 2 Blue-wings, and 6 Many-colours were reared, 2 broods of the latter species being reared by the same pair of birds, which is unusual.

But it was with Doves and Pigeons that Mme Lecallier was most successful, rearing numbers of Crested, Diamond, and Masked, 6

Bleeding Hearts, 3 Jobi Island, 2 Red Mountain, 2 Blue-headed (*Cyanocephala*), 3 *Geotrygon caniceps*, and 7 *Gallicolumba rubescens*. In addition to which a number of Gouldian, Long-tailed Grassfinches, Tricolor Parrot-finches, Bib-finches, and Rufous-tailed Finches were reared. Truly a wonderful record.

CORRESPONDENCE

EARTHWORMS AS AGENTS OF DISEASE

SIR,—I think Mr. Allen is quite right in regarding the earthworm as an active agent in spreading disease, no doubt by reason of its habit of constantly filling itself with soil and anything that the soil may contain. The dangerous nature of the worm under certain conditions is indicated by the fact that it is often impossible to rear young Cranes (which are fed by the parents largely on earthworms) in any enclosure where the ground is in the least degree fouled by a large stock of birds.

Salt is a good and safe worm destroyer and soil purifier, but I am surprised that the use of a worm-killer preparation did not result in the poisoning of the birds.

TAVISTOCK.

THE AVICULTURAL SOCIETY OF NEW ZEALAND

SIR,—Members will be interested to learn that our antipodean confrères have formed The Avicultural Society of New Zealand. Mr. G. Rowland Hutchinson, of Auckland, has been elected Hon. Secretary and Treasurer; and Professor Sparren Johnson, Professor of Zoology at the Auckland University College, has undertaken the duties of Editor. Aviculturists in New Zealand have been hitherto but few. The formation of a Society, however, should increase greatly the number of those interested in the “Amiable Art of Aviculture”

A. A. PRESTWICH.

LONGEVITY

Sir,—In regard to the question of the age attainable by birds of different species, I must say I have not the slightest belief in the common theory that the wear and tear of wild life—the search for food, weather exposure, etc.—tend to shorten a bird's life. Of course birds may be

starved by abnormal cold or abnormal drought, but in the main I am sure that the exercise involved in the normal search for food operates powerfully as a life-lengthener by keeping the bird in that hard condition which in all animals is so conducive to longevity.

If its constitution is not too weakened to withstand the increased exposure to changes of temperature, the rejuvenating effect of complete liberty on a bird ageing rapidly in close confinement must be seen in order to be believed.

Judging by the birds I have observed I am inclined to think that confinement in an English house would involve many factors tending to shorten a Waxbill's life—lack of sun and exercise, shortage of green and insect food, etc.—and that no Waxbill so kept would attain anything like the maximum number of years of which its species is capable under the most favourable conditions. I have seen a Budgerigar that had lived thirteen years in a cage and looked old. I cannot help feeling that under the best possible conditions the species ought to be capable of seeing its twenty-first birthday, at least, but I am aware that under ordinary conditions few may survive much more than half that period. In the course of about 22 years' aviculture I have never seen any larger Parrot-like bird, whose age I knew, grow old in my collection and only three or four, all senile when they came to me, have died wholly or mainly from old age. A record has just come to my notice of a cock Budgerigar vigorous and breeding after eleven years, and another of a cock Pennant which lived for thirty-two years in captivity.

TAVISTOCK.

AN INTELLIGENT ROOK

SIR,—Some years ago [1921, page 6] you published a long letter of mine about my Rook "Jinnie"; after fourteen years spent in the Rectory she died during May, 1926.

I want now to tell you about another Rook, our dear little Michael, whom we have lately lost.

His short life was contained in nine months. Miss Latcham, Jinnie's foster-mother, took him in, a poor half-drowned, half-starved little mite fallen out of the nest last May; he was killed at the end of February this year.

I think his was one of the happiest lives I have ever known; he lived out of doors, mingling with the other Rooks and birds, full of life and energy. He used to go walks with me, and came in and out of the house as he liked, always returning at night and requiring plenty of attention from his foster-mother before he went to sleep. His affection for her was very moving.

I could fill pages with his fascinating ways; there is never any lack of interest when you have a Rook in the house that has never known restraint and is quite natural. Dear old Jinnie was a loving, clever, stay at home: Michael was a real rampageous schoolboy, full of the spirit of adventure, but I must restrict myself to one important subject that will, I think, interest our members. He was a very wonderful talker, he chose his own subjects, and no one ever tried to teach him. As far as I know, his repertoire was:—

1. Michael!
2. Micha—e—I!
3. Come, Birdie! Come, Birdie! Mickey! Mickey!
4. Come along! Come along! Come along, Birdie Micha—e—I!
5. Pardon!
6. 'Tis Michael!

Now 1 and 2 reproduced with perfect intonation Miss Latcham's clear, distinct call, and my drawn out one. 3 and 4 were a mixture of Miss Latcham's "Come, Birdie!" and my "Come along, Birdie!" followed by Mickey! Mickey! He used to ring the changes on "Come, Birdie", "Come along", and "Mickey": you never knew what order they would come in. 5 and 6 were picked up from our young Welsh maid, and were given in a most distinct Welsh tone. The astonished passer-by would be greeted with "pardon" proceeding from a Rook on the top of the wall. Now 6 presents us with a really scientific problem.

In answer to the question, "Who is there?" our Welsh maid often says, "'Tis Hilda," instead of just "Hilda". *No one has ever said "'Tis Michael" yet Birdie never said "'Tis Hilda".* Pure mimicry is consequently ruled out: the bird changed the sound, the "i" in Hilda to the "i" in Michael, substituted another name, and that the appropriate one, with the result that at our doors and on the window-sill our little friend announced himself "'Tis Michael".

Sunday by Sunday I could be seen going to church with Michael perched on the top of my biretta, and immediately I came out he came to call, flying swift from the house or a tree to take up the same position.

In conclusion, I should like to say that when I read Mr. Alfred Ezra's letter in your last issue, my sympathy for him exceeded even my wonder at his dear little Parrakeet's accomplishments.

MENRIES LAMBRICK.

INHERITANCE OF COLOURS IN BUDGERIGARS

SIR,—I have no desire to provoke controversy, but if you could grant me a little space should like to make a few comments on Mrs. Wall's letter in the last issue.

First of all, I rejoice to see that she faces the facts I gave, and attempts neither to ignore them nor to run away from same. In its moderate tone and its freedom from personalities Mrs. Wall's communication is in welcome contrast to some that have been written in the past.

Since the article I wrote for the March issue is in essentials a statement of actual occurrences, I do not see how it can mislead anyone—all can draw their own conclusions, just as I do myself.

Mrs. Wall takes exception to my statement that "theorists hold that the three factors F.O.B. are able to account for everything that happens in breeding the birds", and calls my attention to the remark by Dr. Duncker in the B.C. Bulletin—"very likely there is a fourth factor responsible for it". It, however, is the difference between light and dark blues (not cobalts) and the remark has no bearing on any of the matters touched on in my article. I in turn would invite Mrs. Wall's consideration of two other statements in Dr. Duncker's article (which is a condensation of one in *Vögel ferner Länder*):—

"The composition of colours in Budgies is dependent on three different hereditary factors, which I have named F., O., and B.

"The case of colour heredity in Budgies therefore is a so-called triple-hybrid Mendel case, the three gens of which are acting independently, two of the same alternatively and one intermediately."

These are the relevant statements, and an examination of the article will show that the context merely emphasizes their explicit character. I should be very sorry to do anyone an injustice, but I hold that my statement was perfectly correct and represents the views of the "theorists" until quite recently, though I am quite as well aware as is Mrs. Wall that these views are undergoing modification and addition and said so in my article.

Mrs. Wall needs no excuse for her gentle boast, her striking successes at recent shows fully justify the same, and I take this opportunity of tendering my congratulations. But she misquotes and misinterprets my statement: "I do not at the moment see how the breeder of exhibition Budgerigars can gain any material advantage from the application of these theories of colour breeding." It is not a question of being right or wrong, but of point of view, and means exactly what it says. I do not attempt to deny *that other people* may see a great deal more in them. Mrs. Wall evidently does and attributes her successes on the show bench to the application of Mendelian principles supplemented by "the F.'s, O.'s, and B.'s".

May I, without offence, ask her to consider whether she does not fall into the same error as most of her fellow "theorists"? Does she not overstate the case? There is nothing surprising in her production of strains of cobalts, mauves, and whites, since she started with a collection of birds which possessed all the possibilities. Her feat offers neither confirmation nor contradiction of the theories, it has been accomplished years ago by people who did not believe in Mendelism and also by those who had no knowledge of it, though at the same time we must remember that *if* the theorists are right, their principles will come into action whether the breeder believes in them or not. I venture to think that the results obtained by Mr. J. W. Marsden, myself, and a few others in producing olives, cobalts, mauves, and whites from greens *alone* presents material which bears much more directly on the problem. These results could not, so far as I can see, have been obtained if these ideas had been well founded. However, I say again that I am open to conviction first, last, and all the time.

I am sorry to say, however, that Mrs. Wall has failed to convince me of error. She has produced during recent years a certain number of

cobalts, mauves, whites, etc. But the *exhibitor* must of necessity concentrate on such points as *evenness* and *purity* of colour, regularity of markings, size, type, condition, and since Mendelism does not deal with these matters, I *still* fail to see how it can help in the production of *exhibition* stock. The methods by which this is accomplished have been well known for quite a long time. I take it that Mrs. Wall, in addition to her experiments on these theories, has adopted a system of careful management, including adequate housing and correct feeding, vigorous selection of breeding stock, etc. It is, if she will pardon me, these and not Mendelism which have produced her successes on the show bench. If I am wrong, and she has neglected these well-known principles, then those successes can only have been fortuitous.

While I cannot consider that Mrs. Wall's letter is in any sense an answer to my article, I am for many reasons glad that she wrote it.

J. BRADSHAW.

SIR,—It has seemed to me for some considerable time that that portion of our English Budgerigar breeders—whom Mr. Bradshaw styles “the theorists”—are in a state of considerable mental confusion.

They do not appear to be able to distinguish between “the whole” and “the part”, i.e. between “heredity” and “Mendelism”.

I have noticed this confusion of ideas in all contributions and in conversations with so called Mendelists. Mrs. Wall seems to be equally at sea. Otherwise, how can she ascribe her show successes to this theory of colour breeding? To put it at its highest, and take it for granted that the experience will fall exactly into line with the theory, this would only account for the colour of Mrs. Wall's birds, not their show bench quality, as judged by exhibition standards.

Success on the exhibition show bench can only be obtained by a systematic selection of good birds of known ancestry for breeding purposes. This method has been known for ages, and is generally called “pedigree breeding”.

I have no doubt Mrs. Wall has operated along these lines, with undoubtedly a keen eye for colour.

If anyone is misled, it will be by Mrs. Wall's letter, and not by

Mr. Bradshaw's article—which, stripped of its undercurrent of gentle raillery, is “a catalogue of facts”.

To put forward one isolated remark mentioned tentatively in the closing sentence of an article, and to disregard the whole tenor and purport of that article, scarcely suggests close examination, and is certainly not fair comment.

I wish Mrs. Wall every success in the future and think her success in the past has been well merited ; but I suggest to her that it would be more helpful to others if they were encouraged to follow her methods rather than her “theories”.

J. D. MANDER.

CRIMSON-WINGED PARRAKEET

SIR,—Would any member care to give a good home to a young cock Crimson-winged Parrakeet bred last year? He has been trained as a day-liberty bird, and I should prefer to give him to someone who would provide him with a mate and continue to allow him controlled freedom ; but failing this I should be willing to let him go to a good outdoor aviary.—Yours truly,

TAVISTOCK.

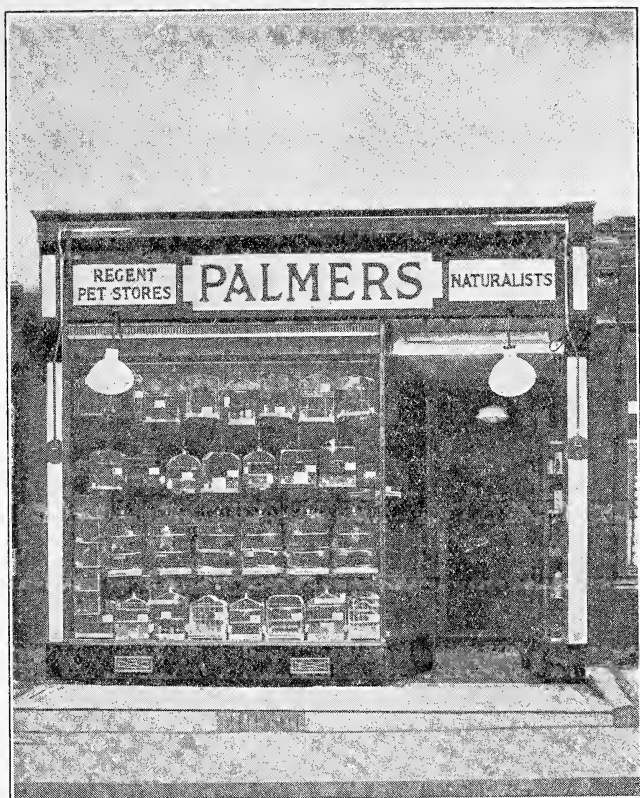
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 'Tis our delight to sing ;
 Of screech and hollow boom
 When eerie echoes ring,
 Our outcry makes the old
 Quake, and their blood run cold,
 And damps the joy of youth
 By trumpeting the truth
 That one and all must die
 And decomposing lie,
 Dissolving into dust
 To swell earth's mouldy crust.

F. FINN.



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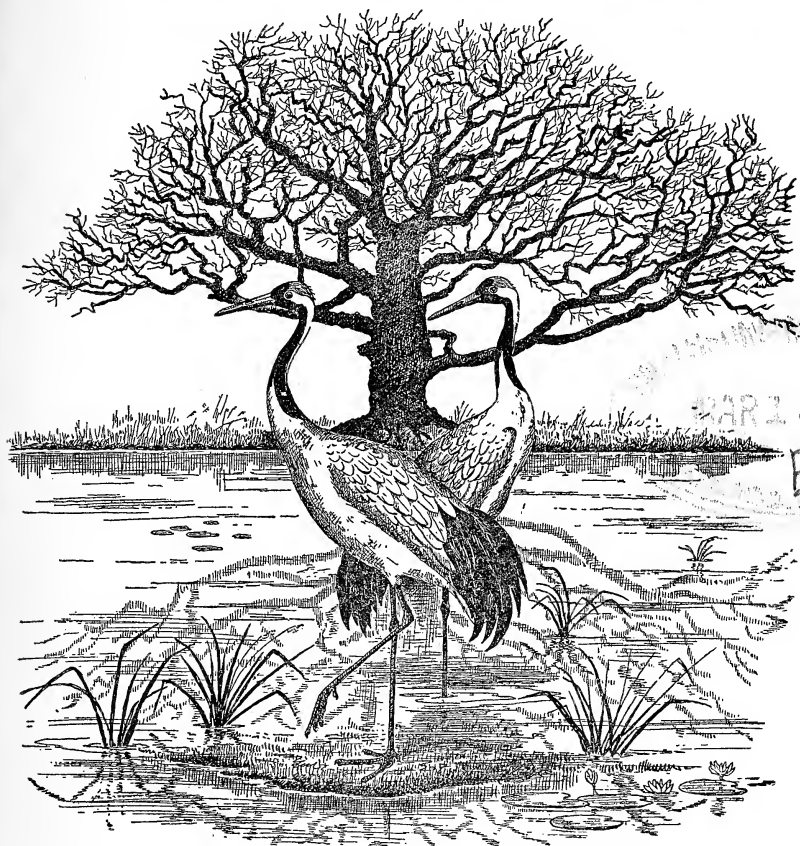
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THE

Avicultural Magazine



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FOUNDED 1894

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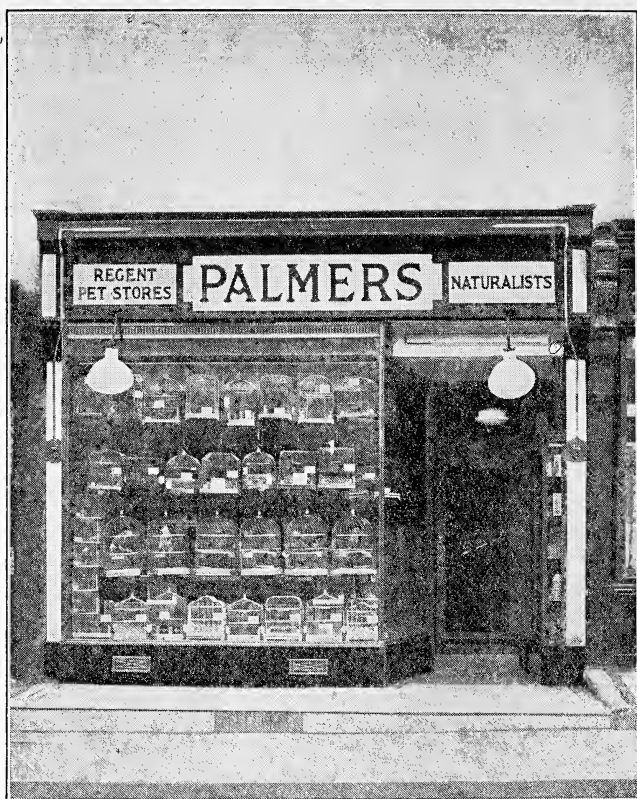
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FOR THE STUDY OF
FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

Fifth Series.—Vol. VII.—No. 6.—*All rights reserved.*

JUNE, 1929.

ELLIOT'S PITTA, *EUCICHLA ELLIOTI* (OUST)

By MISS E. F. CHAWNER

This is perhaps the most beautiful of a very beautiful genus. It inhabits French Indo-China from Cambodgia and Cochin China to the South and as far as N.E. Tonkin to the north; it is particularly abundant in the middle and north of Annam.

Like all the genus it is essentially a ground bird although it roosts in trees; though probably plentiful where it occurs, it is not often seen, owing to its predilection for woodlands. It is not easy to shoot, but can be snared. It is a bird of the plains, never met with higher than 400 metres above sea-level.

Until 1928 the species was only known by the type male and female skins in the Paris Museum which were presented by Dr. Harmand in 1874 and 1877, but in 1928 two cocks and a hen were captured at Thua-Lun and brought back alive.

The sexes differ greatly in appearance, as is well shown by the plate. Those in the North Hall aviaries are in beautiful condition and very tame. Unluckily, like the rest of their family, they quarrel fiercely among themselves and only one can be kept at liberty in a compartment, though they are perfectly harmless to other species, even the weakest and most defenceless.

They are very silent and in spite of their brilliant colouring are readily overlooked from their habit of choosing a corner and standing motionless. They quickly become tame, even familiar, and those in Mr. Lewis' aviaries enjoy a game with their keeper, snapping and feinting at his fingers when he puts in their food or cleans their cage. On grass they pause and listen for worms just as our Song Thrush does after a shower.

They are greedy birds and must not be allowed to become too fat. Those in Mr. Lewis' aviary were brought by Mr. Webb along with other rarities taken in the Delacour expedition of 1928.

THE PARROTS AT PRIMLEY

By A. A. PRESTWICH

During a recent visit to Mr. Whitley's collection—one of the largest, if not actually the largest, private one ever formed—we noted nearly one hundred and twenty species of Parrots and Parrot-like birds. We would imagine that the great Order Psittaci has never been represented in captivity by a finer series, except perhaps that at the London Zoological Gardens. There are, of course, examples of many of the more commonly imported species in addition to many rarities, as a glance through the list will show:—

Grey, Timneh, Greater and Lesser Vasa, Senegal, Meyer's, Red-breasted, Yellow-fronted, Jardine's, Aubry's and Brown-necked Parrots; Red-faced, Madagascar, Abyssinian, Nyasa, Fischer's, Black-cheeked, Masked and Peach-faced Lovebirds; Red-sided Eclectus and Blue-rumped Parrots; Blue-crowned Hanging Parrakeet; Blue-fronted, Yellow-fronted, Levillant's, Orange-winged, Yellow-naped, Plain-coloured, Diademed, Festive, Green-cheeked, Bodin's, Jamaican (*A. collaria*), and Salle's Amazons; Blue-headed, Dusky, Purple-breasted, Short-tailed and Red-capped Parrots; White-breasted Caique; Hawk-headed Parrot; Blue-winged and Spengel's Parrotlets; Red and Yellow, Red and Blue, Blue and Yellow, Military, Hyacinthine, Lear's, Spix, Severe, Illiger's, Hahn's and Noble Macaws; Red-masked, Wagler's, Whitley's, Mexican, Green, Queen of Bavaria's, Petz's, Sun, Jendaya,

Weddell's, Blue-crowned, Black-headed, Lesser Patagonian, White-eared, Rose-bellied and Red-eared Conures ; Great Black, Banksian, Roseate, Greater Sulphur-crested, Triton, Timor, Lesser Sulphur-crested, Leadbeater's, Salmon-crested, White-crested, Slender-billed, Bare-eyed, Ducorp's and Goffin's Cockatoos ; Cockatiel ; Great-billed, Müller's and Everett's Parrakeets ; Derbyan Parrakeet ; Red Shining and Koro Island Parrakeets ; Rosella, Mealy Rosella, Pennant's, Stanley, Yellow-rumped, Yellow-bellied, Barnard's, Yellow-naped and Red-rumped Parrakeets ; Blue-winged Grass Parrakeet ; Budgerigar ; King, Crimson-winged, Black-tailed and Princess Alexandra Parrakeets ; Black-capped and Red Lories, Red-collared, Varied and Forsten's Lorikeets.

The following hybrids have been fully reared : Mealy \times Red Rosellas, Mealy Rosella \times Barnard's, Barnard's \times Yellow-naped, Yellow-bellied \times Rosella, Crimson-winged \times Black-tailed, and Forsten's \times Red-collared Lorikeets ; also Peach-faced \times Masked, Fischer's \times Peach-faced and Masked, Nyasa \times Black-cheeked and Peach-faced, Black-cheeked \times Masked, and *inter se*.

NOTES FROM A LANCASHIRE AVIARY

By JOSEPH APPLEBY

In carrying on the self-imposed task of giving some account of the trials and tribulations of a Bird-keeper to others of that cult, it is necessary to state that I do not pretend to be an expert, nor do I keep the rare and expensive birds we hear so much of in our Magazine, simply because I cannot afford to and have not the room to do so if I could.

There is no doubt that the keeping of large numbers and species of birds in one aviary, however large, is one of the causes which militate against aviculture in its true sense, i.e. the rearing and care of birds. Therefore if one wishes to rear birds, and not only keep them, the fewer the species the better the results. There is nothing new about this ; we have been told it before by other members of our Society of greater experience than I, but I do think it requires emphasizing.

Then a point over which we have no control is the age of birds when purchased. If one is lucky enough to receive young birds, one is assured of greater success in acclimatizing them. Then the sexing of immature birds is a difficulty not always in our hands. We buy pairs that are too divergent in age or which turn out to be the same sex but different ages.

When these difficulties are not present and all goes well, pairs well matched and in good condition, nesting proceeding according to plan and young hatched, then comes another trouble which I must confess has stumped me. I refer to the procuring of *live* food of a suitable nature with which the old birds can feed their young.

Since last April the population of my aviary has fluctuated, but I begin this year with two more birds than last.

Deaths have been no more numerous than in previous years, despite the severe winter, and with few exceptions have been from natural causes. I have had less trouble with cats. They seem to have discovered that the vicinity of the aviary is dangerous. My Owl friend has done me a good turn, for mice are distinctly less troublesome; in fact I have not had one in the aviary this winter, and judging from the casts I find close to the aviary Mr. Owl's diet is chiefly mice. He is also keeping the Sparrow population to moderate limits. Only the other night I saw him fly into the ivy on the house, flush several Sparrows, and get one in a fir tree to which it had flown. As all my birds roost indoors or else in thick bush, except the Siskin, which still roosts in the open, the Owl either does not see them or has decided they are sour grapes.

The chief cause of death among adults is damp cold, pneumonia following chill unless the bird is caught up and caged as soon as noticed below par.

Following advice given me in the Magazine last June by Lord Tavistock, I have saved several from untimely death. Gin and glycerine or whisky and water, according to ailment, are excellent remedies, together with heat; one can hardly overdo the latter short of roasting. Bovril gives tone and is an easy way of supplying animal food in their drinking water.

I have lost several birds, in perfect condition so far as one

could see, from fatty heart and liver; in other words from over-feeding.

Now here is a difficulty I should be glad to know how to overcome. Given fifty birds of twenty-five different species in one aviary, requiring different seeds, from rice and oats to millet and maw seed, how is one to see that they are all getting enough and not too much?

Nesting last year was good but not successful. Pekin Robins had four nests, three eggs in each, and hatched out three chicks in each nest, reared them until the quills began, they then died. The weather was favourable all the time, but with the exception of live stock caught by the old birds in the aviary, mealworms were the only live food I could give them. Other so-called live food is supplied but was not acceptable.

It was distressing to see the anguish of the old birds as one after another the young died for want of something I could not supply. If they had built in a section of the aviary I can shut off I would have risked giving the old birds their liberty, for they are the friendliest birds I possess.

The Grey Javas did not nest a second time and the White are only just now thinking of starting housekeeping.

Grey Singing Finches had three nests and again reared young up to about ten days old, which then died.

Fire Finches nested in January, but after laying two eggs ceased operations; too cold, I fancy. They were outdoors, but under a roof.

The Masked Grass Finches carried their domestic arrangements no further than building a nest. These together with the Longtailed and Gouldian Finches have been caged since last October. Zebra Finches have had many nests and one nest I had to remove last week contained thirteen eggs, all rotten except two; result, five young out of three pairs. They have a habit of dropping eggs on the floor instead of in the nest.

It is necessary to separate the Fire Finch sexes in the winter or the cocks will peck their partners to pieces. I had a misfortune due to an oversight. I lost all my Silverbills; they found a way out of the aviary through a small space between a wall and the horizontal pipe

carrying the wire, just large enough to allow them to get through, and as they all kept in a flock one must have discovered the exit and the rest followed. This I only discovered when looking for the means of egress obtained by a cock Zebra was behind a clump of gorse put up for nesting purposes and which the Silverbills used freely. That exit is now blocked. It was rather singular that I never saw any sign of them about.

Some birds died of over-feeding, others I lost because they would not eat or what they did eat did them no good. Mr. C. H. Hicks advised me to use sprouted seed, which I have done. I am now trying a trace of iodine in the drinking water of any bird I have caged and which require keeping in good condition: just enough tincture of iodine to make the water in the drinker look rusty. One week iodine, one week without. All I can say about it at present is that all the birds so treated are in topping feather and condition. Orange Bishop going through the moult was caught up in January and given this treatment and good feeding. He is now out and in the flight again in eclipse plumage, quite fit and well.

I am at present debating the same treatment for a Paradise Whydah who has just lost his long tail feathers, but as he seems quite fit at large, and moulted all right last year in the open, I may leave him out.

So although I have had few successes and many losses I shall continue to keep on trying to improve the conditions of my birds and shall be grateful for any sound advice on their maintenance.

[We are very grateful to Mr. Appleby for these interesting notes, and hope that other members will supply accounts of their aviaries and methods of treatment.—ED.]

THE STORY OF A PIGEON

By E. MAUD KNOBEL

My room has two windows in it, one is generally shut, and has three or four Parrots hanging in it, the other is mostly open but has wire over it. Coming into the room one very wet morning last June, I saw

a poor little half-fledged Pigeon pressed against the window that was shut. It was nearly drowned with the rain, and looked the picture of misery. I went to the open window, took down the wire, and held out some food in my hand and called it. It ran along the parapet, though it was so sodden it could hardly move, and took the food. I got some more food and enticed it into the room. After a good meal it settled down on my dressing-table to dry itself, and later I found it asleep on the same spot. After a time it went out of the window, and I was relieved to see that it could fly. I thought to myself, well, that is the end of that. Great, therefore, was my surprise on waking next morning to see the Pigeon looking in through the wire waiting to be fed. Of course I immediately took the wire down and gave him a good meal. All the summer he came regularly, and he kept his times so well that one could rely almost to the minute on when he would arrive. His times were 7 a.m., 12.45, and 3.35. After his meals he generally had a good preen, and then went to sleep, either on the corner of my dressing-table or in the middle of my bed, a place I did not much care about. Sometimes he visited the Parrots and sat on their cages, but not often. After a time his visits became less, and he only came once a day, either at 12.45 or 3.45. But during the great cold in February he frequently came early in the morning, and if not let in immediately would tap at the window. He seemed starved with the cold and hunger.

He has moulted into a very handsome dark bird, nearly black, with a beautiful iridescent neck. Lately he has brought his fiancée, and he will make love to her just outside the window very early in the morning and wake me up ; it is very inconvenient of him. She is much lighter in colour than he and a good deal bigger. She is rather shy and won't often come in, but if she does she waits until he has finished.

I suppose I shall have to expect the family next, and fear I may find them quite an expensive item.

GROUND DOVES AND PIGEONS

By T. H. NEWMAN

The Ground Doves and Pigeons are placed in the sub-family *Geotrygoninæ*. They are robust birds with stout and rather long legs, the wings are short, broad and rounded, but the primaries are distinctly longer than the secondaries. In their wild state probably most of the species pass much of their time on the ground, but in captivity many only come down to feed; they do not require any special feeding.

The RUFOUS-NECKED WOOD-DOVE (*Aplopelia larvata*), known as the Lemon Dove in South Africa, where it is confined to the forest and thick bush. It is generally seen on the ground seeking its food of forest berries; it has a short melancholy coo, and nests in low creepers a few feet from the ground. Two specimens were presented to the London Zoological Gardens in 1892. Upper surface olive-brown, interscapular region slate-grey with greenish-copper edges to the feathers; outer tail feathers greyish towards the extremity; front part of head white, back of head and neck coppery-purple; foreneck and breast dull vinous, passing into cinnamon on lower breast. Female a little smaller and duller. Habitat: South Africa; a smaller race (*bronzina*) in Abyssinia and Shoa.

VERREAUX'S GROUND-DOVE (*Leptoptila verreauxi*). In Panama this Dove frequents the second-growth woods. In Costa Rica many can be met with, in the forests, on the ground; when disturbed they get up and fly a short distance, when one can generally get quite close to them. Eleven specimens of this species are supposed to have been presented to the London Zoological Gardens in November, 1907, but I see that there is a doubt as to their identity, as they may have only been *L. reichenbachii*. General colour above greyish olive-brown, back of head, nape and hind neck coppery-red with green and purple reflection; forehead, throat, breast and sides of body pale vinous; under wing-coverts and inner web of quills bright chestnut. The first primary quill in this genus is attenuated at the tip. Habitat: From Costa Rica in Central America south to Guiana, including

Trinidad on the east to Peru on the west. The species has been divided into eight or nine local races.

The GREY-CROWNED GROUND-DOVE (*L. plumbeiceps*). Ridgeway calls this bird Bonaparte's Dove, doubtless because Lawrence called it *bonapartii* in 1871, thinking he was describing a new species. Nothing seems to have been recorded respecting its habits and nidification, but they are no doubt similar to those of other members of the genus. I do not think it has been imported into England alive, but Mr. Delacour tells me that he has had it in France. Upper parts plain olive-brown; forehead greyish-white, passing through deeper bluish-grey into slate-grey on crown, occiput and nape; lower hind neck and upper back faintly glossed with purple; cheeks, throat, fore neck and chest vinaceous buff passing into white on chin, lower abdomen and under tail-coverts; the quills are rufous-lined like Verreaux's Dove. Habitat: South-East Mexico to Northern Colombia.

The RED UNDER-WINGED OR GREY-FRONTED GROUND-DOVE (*L. rufaxilla*) is common in British Guiana about the cane- and rice-fields, the savannah, and also the second-growth jungle, for the depths of which it seems to have a liking. During the rainy season, when the savannah frequently becomes flooded, these Doves are driven on to the well-drained estates, where they become very abundant, though never associating in flocks. At all times it is a ground-feeder, preferring some form of overhead cover while foraging for seeds. Pairs are met with from August to November, when the characteristic deep-toned "coo", uttered at long intervals, is frequently heard. They nest in small trees, tall bushes, or even on the ground at the roots of small trees and bushes. Upper parts greenish olive-brown, with lilac reflections on mantle, upper back and lesser upper wing-coverts; forehead whitish, crown slaty-grey with a tinge of lilac on nape; cheeks and lower throat sandy-buff, chin white; breast vinous, fading into white on under tail-coverts; axillaries and under wing-coverts bright rufous like the greater portion of the quill lining. Habitat: North-East Brazil, Guiana, Colombia, Ecuador and Peru.

REICHENBACH'S OR RUFOUS GROUND-DOVE (*L. reichenbachii*). Burmeister tells us this was one of the commonest Doves he met with

in the forest region. He did not find it in the open, but only on the narrow forest paths, where it could easily escape danger ; it builds its nest rather high up amongst the thick trees. This species was first bred by the late Miss Alderson, who has given us an interesting account in the AVICULTURAL MAGAZINE, Vol. II (2), p. 270. It has also nested in other aviaries. I had three specimens, but do not think they nested. Wings and back olive-brown ; forehead whitish shading into bluish-grey on the crown ; back of head, nape and upper mantle glossed with purple ; chin and middle of throat white ; cheeks, sides of neck and breast deep reddish-vinous fading into white on the under tail-coverts. The young bird is much duller and has chestnut margins to the feathers of the wings and breast. Habitat : South-East Brazil and Uruguay.

The GREEN-NAPED GROUND-DOVE (*L. chlorauchenia*). There is some doubt whether the proper name for this species is not *chalcachenia* ; it all depends which appeared first in print. Foster found it a common resident in Paraguay, breeding throughout the year. It inhabits woods, spending much time on the ground, walking briskly under the trees searching for seeds and berries. The nest is placed in a tree some twelve feet from the ground and is a very fragile structure. Miss Alderson was also the first to breed this Dove. She kindly gave me the young cock bird which she reared. I kept it for about two and a half years. A full account of the nesting appeared in the AVICULTURAL MAGAZINE, Vol. III (2), p. 130. It seems to be a very amiable species, agreeing well with even closely allied species. General colour greyish-brown ; forehead whitish, crown, back of head and hind neck leaden-grey with beautiful greenish-blue sheen ; under surface of wing cinnamon ; throat and breast pale vinaceous fading to white on chin, abdomen and under tail-coverts. The young on leaving the nest are like their parents, but lack the vinaceous tinge on breast and sheen on hind neck, and are generally duller and greyer. Habitat : Argentina, Uruguay, Paraguay and South Brazil.

The ORANGE-WINGED GROUND-DOVE (*L. ochroptera*). Nothing seems to have been written about the habits of this bird, but it seems to differ only from the bird just described by being smaller. Two

specimens have been exhibited in the London Gardens. Habitat : South-East Brazil.

The WHITE-FRONTED OR JAMAICAN GROUND-DOVE (*L. jamaicensis*). Is by far the prettiest and most attractive member of the genus ; it spends most of its time on the ground, picking up various seeds. It is said to be fond of orange pips, and is very fond of cut-up peanuts in captivity. It frequents woods and usually builds in rather a low situation, often in a logwood. This is one of the nicest birds to keep, for not only is it a very lovely bird but, like most of the species of this group, is very gentle and amiable in disposition ; it was a great favourite with the late Miss Alderson, who possessed many specimens—as many as fourteen at one time. She was the first to breed it in 1903, shortly before Mr. Castle-Sloane did so. A very full account of the nesting, with photos of the old and young, was published in the AVICULTURAL MAGAZINE, Vol. I (2), p. 395, and Vol. II (2), p. 28, while a fine coloured plate was issued in the following volume. Male : back and wings olive-brown, forehead white ; crown soft ash-grey ; back and sides of neck beautiful metallic pink shot with golden or bluish-green according to the light ; cheeks, throat, and entire under parts snowy-white. Female : smaller, forehead more greyish and the white parts not quite so pure. The young on leaving the nest have the forehead, throat, and breast whitish-drab ; back and wings chocolate-brown, with chestnut spots on tips of the feathers. I had one or two pairs, but never got beyond a few eggs. Habitat : Jamaica. A smaller race (*collaris*) with darker upper parts is found in Grand Cayman Island and a paler and greyer form (*neoxena*) inhabits St. Andrew's Island.

WELLS'S OR GRENADA GROUND-DOVE (*L. wellsi*). No notes about the wild habits of this Dove seem to have been published since it was first described in 1884. They seem to have very much the habits of *Zenaida*. Five were presented to the London Zoological Gardens by Mr. Wells in 1886. The late Dr. Butler possessed a hen which laid many eggs, Mr. O. E. Cresswell received six in 1898, Mr. Pool five in the same year, and Miss Alderson had a pair in 1904 ; they seemed rather wild and not so good-tempered as most members of this genus. A young bird was bred by Mr. H. Bright in 1926. Upper

parts brownish-olive ; forehead pinkish-white shading to grey on the crown ; chin and throat pure white ; cheeks, lower throat, and breast dull vinous fading to white on chest, abdomen and under tail-coverts cinnamon ; naked skin round the eye blue. Female, as in other species, similar but duller and forehead not so white. Habitat : Island of Grenada, Lesser Antilles. Some of the imported birds were supposed to have come from the neighbouring island of Tobago.

The CRESTED QUAIL-DOVE OR MOUNTAIN WITCH (*Geotrygon versicolor*). We owe our best account of this magnificent bird to Gosse, who tells us it inhabits the deepest glades of the most retired mountains, walking on the ground, seeking to escape when alarmed by its fleetness of foot. Its popular name is derived from its note, which sounds at a distance like a groan. It feeds on seeds and nuts. It is said to nest in the angle of the roots of trees in the month of March. Two eggs that I have are of a pale fawn colour. According to the latest report of the residents of the island this fine species is now on the verge of extinction. Mr. S. T. Danforth says he flushed a single bird on 3rd August, 1926, near Jackson Town. The London Zoological Gardens received their first specimen in 1860. Six were deposited in 1902, and one was purchased in May, 1904. Male interscapulars and upper wing-coverts purplish-chestnut ; lower back, rump and upper tail-coverts dark greenish-blue shot with purple ; primaries cinnamon, greenish at tips ; secondaries and tail above blackish-green ; forehead blackish grey shading into olive-brown towards the back where the feathers are elongated to form a distinct crest ; a broad reddish stripe on the cheeks ; neck golden green shot with purple ; throat rufescent ; abdomen pale vinous ; flanks and under tail-coverts chestnut ; bill long and black. Female with the chestnut parts paler. Habitat : Jamaica.

The RUDDY QUAIL-DOVE (*Oreopeleia montana*) is essentially a Ground-Pigeon, preferring a well-wooded country filled with bushes as well as trees. The food consists of seeds, berries, and nuts, also small slugs have been found in its gizzard. The nest is placed in a low bush about three feet from the ground and is a rude structure, perhaps nothing more than a few decayed leaves and two or three dry twigs ; the eggs vary from pale cream to salmon-buff. Formerly

this bird was very common in Jamaica, but is now very scarce there, doubtless due chiefly to its destruction by the introduced Mongoose. In captivity this is a very gentle little Dove, it was bred by the late Sir William Ingram. The male is bright rufous above with a purple tinge especially on back of head, nape, sides of neck and mantle; a rufous stripe from base of lower mandible to the ear-coverts, below paler reddish-purple fading to fawn on throat and under tail-coverts. The female is dark olive above with a golden gloss; forehead and cheeks rufous; throat and breast olive-brown, lower breast and abdomen buffish. Habitat: Greater Antilles and tropical continental America from South Mexico to Paraguay, Bolivia and Peru.

The MARTINIQUE QUAIL-DOVE (*O. martinica*). Great confusion seems to have existed between this species and the following one. I have not been able to find any modern notes about the habits of the Martinique Dove. Jardine tells us it inhabits rocky districts and lives constantly on the ground and roosts on the lowest branches of a tree. They are found in family parties or large coveys, being wild and not easily approached, running with great quickness when alarmed. Male: upper parts deep chestnut, deepening into rich purplish chestnut on hind neck and back; forehead vinaceous-fawn; a vinaceous-chestnut patch across the ear-coverts; below ochraceous-cinnamon, paler on throat and under tail-coverts; female has upper parts olive-brown, lower parts cinnamon-buff. Habitat: Central Lesser Antilles—Guadeloupe, Dominica, Martinique, Santa Lucia and St. Vincent; said to have been exterminated by the Mongoose from the last-named island.

The KEY WEST QUAIL-DOVE (*O. chrysia*) is common and resident in Cuba. It walks with neck contracted and the tail slightly raised, preferring rocky and wooded regions. It likes to perch on horizontal limbs of trees and in the densely timbered portions it may be seen searching among the leaves for food which consists of fruits, seeds, small snails, etc. In 1908 our late President, Mr. Astley, received a female specimen from Cuba which I was able to identify for him. He kindly sent me the body when it died. I found one of the three skins in the British Museum belonged to a bird which had formerly

lived in the London Zoological Gardens, so that it does not seem correct to say that the two birds purchased in July, 1924, were the first exhibited there. It is represented in several aviaries in France at the present time; Madame Lécallier has some and Monsieur Decoux has I believe bred the species at Géry. Male: forehead brownish-red changing into metallic green on crown, occiput and nape; rest of upper parts cinnamon with feathers edged with brilliant metallic purple, more golden on lower back and rump; lesser upper wing-coverts have brilliant metallic purple edges; a white stripe from bill to the ear-coverts; under surface greyish-white, a vinaceous tinge on lower throat and upper breast. The female is duller with a good deal of pale brown on the wings. Habitat: Haiti, Cuba, Bahamas and Florida Keys.

The MOUSTACHE OR BRIDLED QUAIL-DOVE (*O. mystacea*). Grisdale tells us that this Dove was exceedingly numerous on the little luxuriant island of Montserrat, especially so on the lower slopes near the sea. It is about the size of a Quail, and its flight is very short and low. Russ found its habits in captivity peculiar, as it spent most of its time perched on high branches and ate raw meat, hard-boiled egg, bread and red currants, as well as seed. Forehead brownish shading into green; head, neck and mantle metallic-green becoming bright purple on upper back; rest of upper surface olive-brown; primaries and outer tail-feathers cinnamon; a broad stripe across cheeks and the throat whitish, a second stripe on cheeks brown; front of neck and crop region reddish fading through pale vinous to whitish on middle of abdomen; under tail-coverts pale cinnamon. Habitat: Lesser Antilles and Culebra and St. Croix of Greater Antilles. A race with more deeply coloured under parts (*sabāe*) is found on Saba Island, Lesser Antilles.

The GREY-HEADED QUAIL-DOVE (*O. caniceps*). Although this is only a recent addition to our aviaries, it has been bred at least in three places. Mme. Lécallier seems to have been the first to rear young birds. M. Decoux has reared certainly one bird; he gives an interesting account of his experiences in *L'Oiseau* for October, 1925. Mr. A. Ezra was the first to breed a young one in England—in 1925; he gives us an account in the AVICULTURAL MAGAZINE for

December, 1925. This species now seems very rare in Cuba, where it lives mostly on the ground in thickly wooded parts and is threatened with extinction by the increasing cultivation of the country. Male : forehead whitish-grey changing into dark grey on the top of the head ; neck dark grey with green and violet reflections ; back glossy violet changing into dark blue on the rump ; throat whitish ; breast grey ; middle of abdomen reddish-white ; under tail-coverts cinnamon ; wings greyish-brown with purple and green reflections. Female : smaller and duller than the male. Habitat : Confined to Cuba.

The VENEZUELAN QUAIL-DOVE (*O. venezuelensis*). This is another rare bird of which nothing seems to have been recorded about its habits, but they would not be likely to differ from those of other members of the genus. Four specimens were presented to the London Zoological Society in August, 1909. Above rufous-brown ; mantle purplish-blue ; lesser wing-coverts tinged with purple ; primaries slaty-brown ; forehead rufous becoming vinous on crown and purplish-vinous on back of head, bounded on the sides by grey ; sides of head whitish, rufous towards mandible ; a blackish line below the cheeks ; throat white, greyish-vinous on breast, rest of under surface reddish-brown fading to whiter on centre of abdomen. Habitat : Venezuela. Chapman in 1917 considered that this is not a valid form and should be united with the Colombian Quail-Dove (*O. linearis*). At most it cannot be more than a race of this species ; other races have been described from Colombia (Santa Marta), Venezuela (Paria Pen), and Trinidad.

The BLEEDING-HEART PIGEON (*Gallicolumba luzonica*). It is strange that so little should have been recorded about the wild life of this most beautiful bird about which even legends have been written ; as its long legs and powerful feet indicate, the birds are invariably found on the ground in the forest ; they run very rapidly and in close cover frequently escape in this way without taking wing ; when flushed they generally alight on the ground again and run rapidly after alighting. The snow-white breast with its brilliant red centre spot has always called attention to this Dove so that it has been much sought after for keeping in captivity. It was first bred in the London Zoological Gardens in 1887. Miss Alderson had several pairs and

reared young. She gives us a description of her birds in the AVICULTURAL MAGAZINE, Vol. I (2), p. 132, with a photo of two of her young birds. I had one or two pairs, but never bred the species. Since the war it has become very scarce in England, but I note that it is represented in several French aviaries at the present time. Forehead whitish, shading into delicate grey on the crown ; back of neck with purplish maroon tinge ; upper surface greyish-brown shot with bronzy-emerald green ; upper wing-coverts reddish-brown broadly tipped with bluish-grey forming three bands across the wings ; throat and fore neck pure white ; a bright red spot composed of hair-like feathers on the centre of the breast, rest of under parts tinged with buffy-salmon, whiter on abdomen and under tail-coverts. The female is smaller with a shorter and thinner bill, and generally more buff on the under-parts. One bird which I picked out for a cock because of its white forehead and very large red breast patch, turned out to be a hen, so these are not signs of sex. Habitat : Luzon, Philippine Islands.

BARTLETT'S BLEEDING-HEART PIGEON (*G. crinigera*) is the richest and most harmoniously coloured species of a most beautiful group of Doves. Mr. W. Goodfellow, in a letter to me about the birds he obtained in Mindanao, wrote that these birds are by no means common in their own country and are very locally distributed around the somewhat drier parts of the coast lands, they are forest birds, but do not perch in the trees. He remarks that when one of the birds got into a weak state on the voyage home, a few scraps of raw meat a day quite pulled it round ; the birds were very fond of a little soaked bread or soft food. Four specimens were purchased by the London Zoological Gardens in 1863, and two young were reared. I obtained a pair in 1907 which reared one young bird the following year, both my bird and those in the London Zoological Gardens only laid one egg at each sitting. An account of the nesting will be found in the AVICULTURAL MAGAZINE, Vol. VII (2), pp. 225, accompanied by an excellent coloured plate of the adult and young, also some photos of the nest and young. Head, back, and sides of neck and mantle metallic green ; upper surface rich chestnut ; lesser wing-coverts grey glossed with bronze-green ; median and greater coverts tipped with grey forming bands

across the wing ; all the smaller feathers edged with metallic green, purple or pink, according to the angle seen, while the green of the head and neck glows emerald-like in the sun. Chin and throat pure white which descends in a narrow line down each side of the breast, dividing the green of the sides of the neck from the large crimson-maroon patch on the breast ; this is much larger than in the common species and is composed of longer feathers of an even harsher and stiffer texture. The bases in both species are white ; rest of under surface rich fawn colour ; iris beautiful lilac, like the bloom on a grape. The female is smaller, duller and with weaker bill. The young differs in having the crown dull chestnut, only the nape being green ; the edges of the wing-coverts are pale fawn instead of grey, the throat is duller white, which is not continued in a line down the sides of the neck, the red patch on the breast appears when the bird is about two months old. Habitat : Mindanao, Philippine Islands. The bird from Basilan is smaller and has been called *G. c. basilanica*, while another form from Leyte, Sulu Arch, has been named *G. c. leytenensis*, about the same size as the last named, the sides of the neck are greyer and the green gloss extends lower, below and beneath the red patch. I do not think any more specimens have reached England since my birds, but I believe Mme. Lécailier has some in her splendid collection in France.

(To be continued.)

RARE BIRDS IN THE NEW YORK ZOOLOGICAL PARK

Mr. Lee S. Crandall, Curator of Birds at the New York Zoological Park, has recently returned from an expedition to New Guinea in quest of Birds of Paradise and other rarities, with a collection of nearly 500 birds of 58 different species. He writes : " It was a wonderfully interesting trip, but the difficulties are greater than can be imagined by anyone who has not been there. Every Bird of Paradise brought alive from Papua is worth its weight in gold—and I don't know that I should care to take it on at that rate ! "

Amongst the birds landed safely in New York may be mentioned

the following Paradise Birds : 16 Lawe's Six-plumed (*Parotia lawesi*), 2 Meyer's Long-Tailed (*Epimachus fastosus meyeri*), 6 Lesser Superb (*Lophura superba minor*), 1 Hunstein's Magnificent (*Diphyllodes magnificus hunsteini*), 2 Count Raggi's (*Paradisea apoda raggiana*), 7 Prince Rudolph's Blue Bird (*Paradisornis rudolfi*), and 6 Manucodes of three species.

D. S-S.

A FINE COLLECTION OF PAPUAN BIRDS

I have seen many collections of birds arrive from foreign parts, but never have I seen birds come home in more perfect condition than those in a collection from Papua which was brought home on 13th May by Mr. Shaw Mayer, who has been collecting for Mr. Spedan Lewis. Almost every bird is in perfect plumage and fit for keen competition on the show-bench. Even the Birds of Paradise, of which there are some forty specimens, have their plumes intact and spotless.

Of Paradise Birds there are four Lesser (*Paradisea minor*), three males and one female ; nine Twelve-wired (*Seleucides ignotus*), seven males and two females ; seven Six-plumed (*Parotia sefilata*), five males and two females ; six Wallace's Standard-wings (*Semioptera wallacei*), five male and one female ; three Wilson's (*Schlegelia wilsoni*), one male and two females ; six King's (*Cicinnurus regius*), five males and one female ; and four Magnificent (*Diphyllodes magnificus*). The remainder of the collection contains some fine Parrots, of which may be specially mentioned a pair of the rare Lory, *Eos histrio* from Sangi Island and a rare *Aprosmictus*, probably *A. dorsalis*. There is a fine Grackle clad in black and golden, entirely new to aviculture and belonging to the genus *Melanopyrrhus*. There are three very beautiful Kingfishers with white heads and underparts, greenish-blue backs, and blue wings and tails. Mr. Mayer reared them from the nest in the island of Almahera. They appear to be *Halcyon albicilla*, and are probably new to aviculture. There is a beautiful specimen of that lovely Pheasant Pigeon *Otidiphaps nobilis*, and many others, including Sunbirds and Honeyeaters.

D. S-S.

REVIEW

BIRDS OF ESSEX ¹

Mr. William E. Glegg's *History of the Birds of Essex* will be welcomed by the large number of Londoners who are interested in the birds of their district, for the county, roughly 42 miles square, is particularly rich in bird life. Of its woods, comprising some $47\frac{1}{2}$ square miles, the chief is Epping Forest, running practically into London, and a rare place for woodland birds such as the Hawfinch, Wood Wren, Redstart, and Greater-spotted Woodpecker. Garden Warblers, Lesser White-throats, Nightingales, etc., are found in the thick undergrowth of its commons. The Lea Valley Reservoirs form the most important part of the fresh water of the county, stretching, as they do, along the Lea Valley for a distance of $6\frac{1}{2}$ miles. Here is a large colony of the Crested Grebe; Tufted Ducks rear numerous broods, the Reed Warbler is common, and many Yellow Wagtails nest. Here also Wildfowl gather in large numbers during the winter.

The coast is deeply indented by estuaries and creeks in which Waders of many species abound; Wigeon and Brent Geese are numerous in the winter, and Sheld-duck breed in increasing numbers. There are at least six nesting colonies of the Black-headed Gull, and four of the Little Tern on the Essex coast.

Altogether Essex is a good bird county, which well deserved an up-to-date ornithological history, the previous book on the subject, *The Birds of Essex*, by Mr. Miller Christy, having been published thirty-nine years ago. Mr. Glegg has done his work well and produced a splendid book, in the production of which he has received valuable help from the late Mr. Miller Christy, who placed at his disposal his unpublished supplement to his *Birds of Essex*. The value of the book is enhanced by the inclusion of twenty photographic plates and an excellent map of the county.

D. S-S.

¹ *A History of the Birds of Essex*, by William E. Glegg, F.Z.S., M.B.O.U. H. F. & G. Witherby, 326 High Holborn, W.C. 25s. net.

CORRESPONDENCE

A WONDERFUL PHEASANT COLLECTION

SIR,—One of our members, Captain Scott Hopkins, of Kirbymoorside, near York, has within the period of twelve months got together a fine collection of Pheasants. These include :—

Two pairs of Bornean Firebacks,

Two pairs of Diardi Firebacks,

One pair of Nepal Kaleege,

Two pairs of Impeyans,

Two pairs of Elliotts,

One pair of Peacock Pheasants,

One pair of Swinhoe,

Four pairs of Satyr Tragopan,

in addition to the commoner sorts, such as Goldens, Silvers Amherst, Reeves, and Melanistic.

The aviaries, which were built after Captain Hopkins' own design, are in my opinion ideal.

Captain Hopkins will be only too pleased to show the birds to any members or their friends passing through the district. I might mention for the sake of motorists that Kirbymoorside is adjoining some of the finest dale scenery in Yorkshire.

G. BEEVER.

LIVE FOOD

SIR,—For the last three years, since I have had suitable aviaries and been able to rear some Quail and Hemipodes, I have had to rely upon gentles which are quite good enough for that purpose. Last year I utterly failed to get any live ants' eggs beyond the few which the garden supplied. I had about half a dozen nests of Dufresne's Waxbills and the same number from Green Avadavats, but not a single egg contained a young bird. I believe that was owing to the fact that the parents had to live on hard seeds and so-called insectivorous mixture.

Lately I have written to several dealers in birds and seeds asking if

they can supply live ants' eggs, and have always got the same reply : " There is no demand for them." Last week I was at Gamage's and was told that if there was a sale for them they could be got, but they have to be got from Germany by aeroplane in bulk, and they must have sufficient orders to be able to send off all of them directly, as they will not keep. I think with our long list of members there must be many in my circumstances. If so, I wish they would write to Messrs. Gamage and say how many they will take per week during the season.

H. L. SICH.

ALEXANDRINE PARRAKEETS : INCUBATION PERIOD

SIR,—A pair of Alexandrines in my possession laid three eggs on 23rd, 25th and 27th March. The hen apparently started to sit with the first egg, and hatched out three young on 23rd April. As this is twenty-eight days from the last egg I thought it worth while letting you know, as all information I have been able to obtain has given the period of incubation as twenty-two to twenty-four days. The same pair of birds laid three eggs last season, hatching one chick, which she reared, and then nearly killed herself eating the bad eggs when she cleaned her nest. Period of incubation last year was twenty-eight days from last egg.

C. HEYDON.

THE BIRD COLLECTION IN THE NEW YORK ZOO

SIR,—I notice that in the AVICULTURAL MAGAZINE for March, 1929, Mr. A. A. Prestwich states that 150 species of birds are " more than can be seen in any of the American Zoos at one time ". This is a small matter, of course, and quite obviously a slip, but I should be sorry to have the members of the Avicultural Society think that the Zoological Parks of America have fallen to such a low estate. In our own collection, we try to maintain an average of 800 species. We have at the present time 760 species. Several other institutions, in the larger cities, certainly keep more than 150 species.

LEE S. CRANDALL.

REEVE'S PHEASANTS

SIR,—I wonder if any of our members can explain the non-reliability of Reeve's Pheasants in regard to breeding. I heard of several pens last year where hens laid no eggs and in some cases where eggs were laid they were unfertile. I have also heard of two cases recently where cocks are not mating with hens.

G. BEEVER.

AVICULTURAL NOTES

By THE EDITOR

When in Berlin in 1912 I was greatly interested in the number of full-winged Carolina Ducks in the neighbourhood of the Zoological Gardens. They were breeding freely in boxes fastened high up in the trees, and I was told that some actually found nesting accommodation on the roofs of houses. It was very pleasant the other day to meet my old friends Dr. and Mrs. Heinroth from the Berlin Zoological Gardens, and I asked how the Carolinas had prospered. The experiment which at first appeared to be so successful had proved eventually to be a failure. The birds had unaccountably died or strayed and eventually they practically died out.

Now, I am told, the Mandarin Duck has entirely taken the place of the Carolina and is numerous in the wooded district surrounding the Zoological Gardens and actually in the gardens themselves and there is no sign of any deterioration. Dr. Heinroth thinks that this species is better adapted for acclimatization in Europe than is the Carolina, and this has also been the experience of those who have tried the two species in England. Sir Richard Graham tried both species some years ago at Netherby, and the Mandarin succeeded admirably while the Carolina failed, chiefly, I gathered, from its propensity for straying.

Now what could be more attractive than a number of full-winged Mandarin Ducks in the London Parks? All the conditions are there for their successful establishment, plenty of trees and a number of

ponds, large and small, and complete protection. What we want is for someone to give us the birds or the wherewithal to purchase them, say 50 pairs. These would be placed, unpinioned but with clipped flights, say in St. James' Park, one of the Hampstead ponds and the Zoological Gardens, providing, of course, the necessary permission could be obtained.

At first these birds would be unable to fly, and while in this condition would become tame and accustomed to their surroundings. When the moulting season came they would regain their power of flight, but, unless I am much mistaken, they would remain in the neighbourhood and breed in the trees providing suitable nesting boxes were available, for the Mandarin Duck naturally nests in hollow trees, sometimes at a considerable height from the ground.

In China, we are told, the Mandarin Duck is carried in wedding processions, and is regarded as a symbol of conjugal fidelity. There is good reason for this it would seem, for of all the Duck tribe this seems to be the last to bestow its affections elsewhere than upon its lawful mate. Hybrids amongst Ducks are common, but who has ever seen one of which the Mandarin was one of the parents ?

No less than eight examples of the Derbyan Parrakeet have reached this country within the last few weeks, six of these having gone into Mr. Ezra's aviaries. Others have gone to France. We shall hope to hear that this very fine species has been bred in this country soon, for it will surely breed as readily as any other of the Ring-neck group. It is not long ago that it was extremely rare in Europe and many will recollect the excitement that prevailed when one was exhibited under the name of "Salvadori's Parrakeet", which is only another name for the same bird.

The old Foreign Bird Exhibitors' League has been revived under the title of the "Foreign Bird Exhibitors' Association" with the Marquess of Tavistock as President and Mr. John Frostick as Chairman. The annual subscription has been fixed at 5s. The Association has as its

object the furtherance of the exhibition of foreign birds, with a show of its own during the summer. All aviculturists are invited to join in supporting the scheme even if they are not in the habit of exhibiting. The Hon. Treasurer is Mr. Tom Goodwin, of 185 Old Kent Road, S.E. 1, and Mr. H. C. Pepper, of 21 Bromley Road, Catford, S.E. 6, is the Hon. Secretary.

THE SOCIETY'S MEDAL

It is proposed to award a medal to Mr. G. H. Gurney for the successful breeding of the Abyssinian Helmeted Guinea-fowl (*Numida ptilorhyncha*) for the first time in the British Isles. An account of the event was published in the January number. Any member or reader knowing of a previous instance is requested to communicate at once with the Honorary Secretary.

THE VISIT TO FOXWARREN

Mr. and Mrs. Ezra's kind invitation to spend the afternoon of Saturday, 25th May, at Foxwarren Park was accepted by over sixty members of the Society, who spent a most enjoyable afternoon. The journey was made by car, a large charabanc having been provided by Mr. Ezra, and many private cars participating. The weather was perfect.

The collection of birds at Foxwarren is one of the best, if not the best, private collections in the world and the members present thoroughly appreciated the opportunity of viewing so many rarities in the splendid range of aviaries and the bird-room. After tea a tour was made of the large and beautiful fenced-in park, where Antelopes, Deer and Wallabies, Cranes and many other species of birds roam in freedom. A recently constructed lake containing many rare Waterfowl was much admired.

The party left with very grateful thanks to their kind host and hostess for a most enjoyable afternoon.

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A GENERAL MEETING OF THE SOCIETY

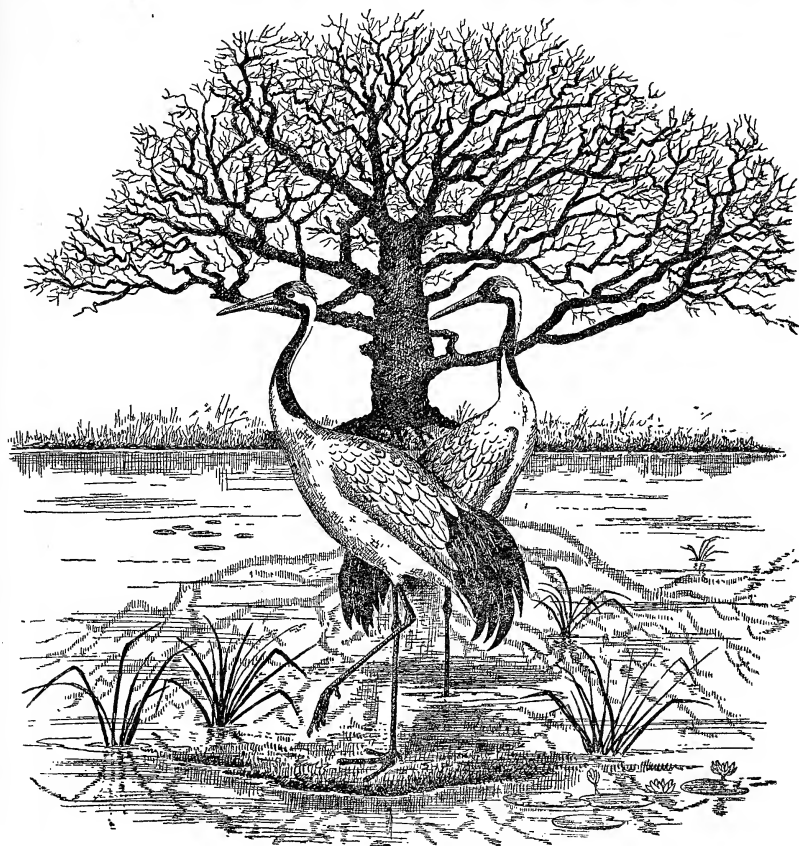
A Special General Meeting of the Members of the Society will be held in Zoological Society's Meeting Room, by kind permission of that Society, on FRIDAY, 5th JULY, 1929, at 5 p.m., after the usual summer tea which will be served in the Restaurant at 4 p.m.

At the meeting papers on Avicultural subjects will be read by members and lantern slides and perhaps moving pictures of birds will be shown.

Each Member is invited to bring one friend to the tea and to the meeting, but it is requested that the Honorary Secretary be notified beforehand.



THE Avicultural Magazine



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The Price of this Number is 2/6.

THE AVICULTURAL SOCIETY.

FOUNDED 1894

NOTICE TO MEMBERS

The Subscription to the Avicultural Society is £1 per annum, due on the 1st of January in each year, and is payable in advance. The entrance fee is 10/0. The *Avicultural Magazine* is sent free to members monthly. Members joining at any time during the year are entitled to the back numbers for the current year, on the payment of entrance fee and subscription.

ALL SUBSCRIPTIONS SHOULD BE SENT TO THE HONORARY SECRETARY AND TREASURER, MISS KNOBEL, 32 Tavistock Square, London, W.C.1.

All Queries respecting Birds (except *post-mortem* cases) and *all other correspondence* should be sent to the Hon. Secretary, at the above address. **Any change of address should be notified to her.**

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The Magazine is published by Messrs. STEPHEN AUSTIN & SONS, 5 Fore Street, Hertford, to whom members should address all orders for extra copies, back numbers for 1917 and after, and bound volumes. Cases for binding the Magazine (in art cloth, with gold block on side) can be obtained from the Publishers, post free and carefully packed, at 3/- each; or the Publishers will undertake the binding of the Volume for 5/6, plus 9d. for packing and postage. Members are requested to state whether they want the wrappers and advertisements bound in at the end or not. Telephone: 46 Hertford.

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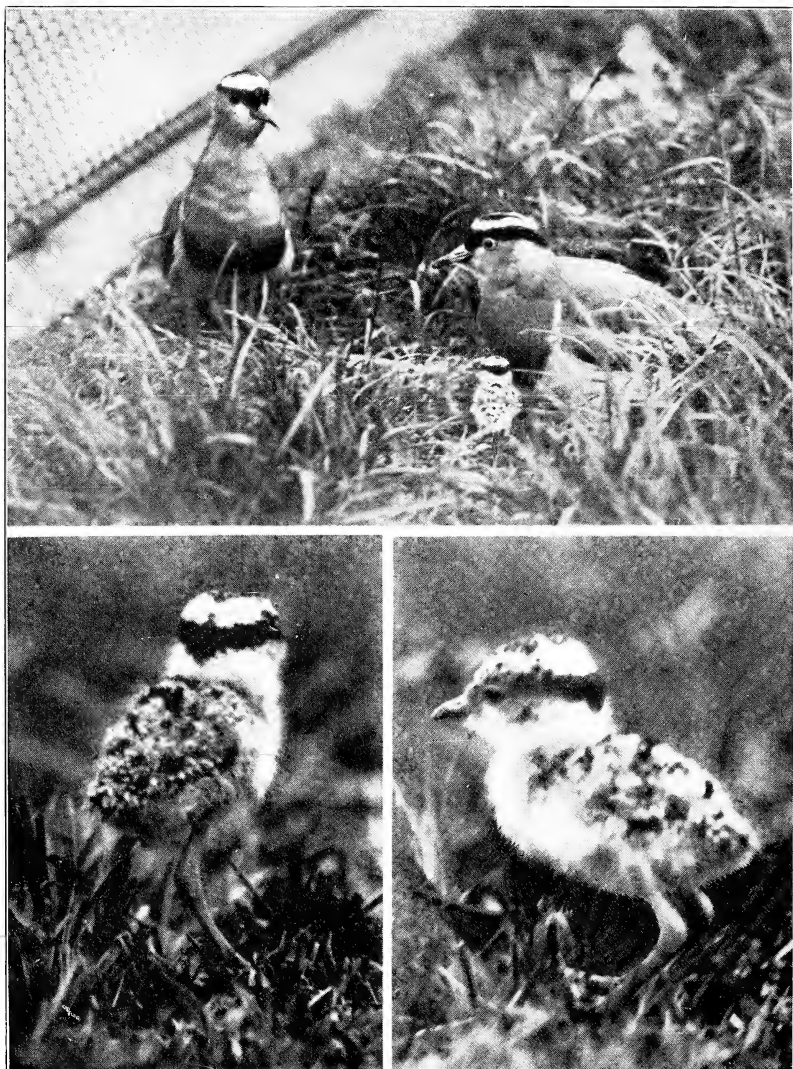
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[Photo, D. Seth-Smith.

CROWNED LAPWING (*Stephanibyx coronatus*).

Top: Parent birds with newly-hatched chick. Below: Two views of newly-hatched chick.

Frontispiece.]

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF
THE AVICULTURAL SOCIETY
FOR THE STUDY OF
FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

Fifth Series:—Vol. VII.—No. 7.—All rights reserved.

JULY, 1929.

THE BREEDING OF THE CROWNED LAPWING

Plovers are very satisfactory aviary birds, providing the conditions under which they are kept are suitable, for not only are they very ornamental but they are easily kept and most of them are hardy.

The Crowned Lapwing (*Stephanibyx coronatus*) was introduced into this country in 1925, when Mr. Webb brought some home for Messrs. Gamage. Mr. Ezra bought some, and the Zoological Society secured a pair. The species occurs in South and East Africa, where it is a resident species which is generally met with in small flocks of twenty or so individuals. It is a handsome bird, conspicuous by its peculiarly ornamented crown, the centre of which is black, surrounded by a broad white ring which is again surrounded by another of black. The upper parts generally are olive-brown, the under parts and tail white, the latter with a black transverse band, the bill, legs, and feet being red.

The pair at the Zoo have, for the last year, shared with several other Plovers the large corner aviary outside the Bird House. Here, in March, they selected a spot within a foot of the wire netting separating them from the public path, and collected a few stems of grass and a few pebbles, which was all the nest they made. Two eggs were laid, and in spite of the crowds of visitors within a few inches of them, sat

steadily, both birds taking turns in incubation. The cold weather at the time was probably responsible for the two eggs failing to hatch. A second attempt was made on the same spot in May, this time three eggs, a normal clutch, being laid. Incubation lasted for twenty-four days, when all three eggs hatched successfully, in spite of the attempts of visitors to feed the sitting bird on bread and monkey-nuts!

The feeding of the chicks presents rather a problem, for the usual insectivorous foods and mealworms are useless. I went into the country with three large tin biscuit boxes and returned with them full of ants' nests. With a trowel we dug the best parts out of nests of the small red ant that is so numerous on downlands. The boxes contained more soil than anything else, but amongst the soil were lots of tiny ant grubs, pupæ, eggs, and, of course, ants themselves.

The chicks are very beautiful, clad in pale buff down, spotted with black on the back, and with the head decorated with a crown like that of the parents.

D. SETH-SMITH.

GROUND DOVES AND PIGEONS

By T. H. NEWMAN

(Concluded from p. 147)

The PAPUAN GOLDEN-HEART PIGEON OR RUFOUS-CROWNED GROUND-DOVE (*G. rufigula*). In New Guinea this bird is quite common, but is very wary and takes flight at the least alarm; a nest was found very close to the ground, the sitting bird being extremely wild. The single egg was of a regular oval form somewhat pointed towards the smaller end; it was white, faintly tinged with cream-colour and somewhat glossy. Four specimens were deposited in the London Zoological Gardens in September, 1915. Forehead and front part of head rufous-buff, paler on the former, upper parts vinous-chestnut, a greyish shade on occiput, nape and upper back; wing-coverts with grey tips, producing four grey bands across the wing; a grey band from above the eye along the sides of the occiput; cheeks pale vinous; under surface yellowish-white, a yellow-ochraceous patch of long stiff

feathers on the middle of the breast ; flanks and under tail-coverts deep buff. Habitat : Greater part of New Guinea (except the south) and N.W. Papuan Islands. In October, 1912, the London Zoological Society purchased an example of the ARU GOLDEN-HEART (*G. r. helviventris*). I believe Mr. Gifford has also had it in America. I was much struck with the remarkable Rail-like appearance of this bird as it ran swiftly about when alarmed. It only differs from typical *rufigula* by the absence of the grey band on the sides of the occiput.* Habitat : South New Guinea and Aru Islands.

BECCARI'S GROUND-PIGEON (*G. (Pampusana) beccarii*). I have not heard of this rare Pigeon being imported to England, but I think Mr. Gifford has kept it in America. I am keeping this section distinct from the typical "Heart" Doves which all have a patch of stiff hair-like feathers on the breast. In the division *Pampusana* this patch is absent, but the breast is covered with a shield of feathers coloured differently from the rest of the under-surface. Typical *beccarii* has the fore part of the head and neck, throat and breast-shield grey, the latter bordered with lighter grey ; vertex, occiput, nape and upper parts dark olive ; smaller wing-coverts and band below the breast-shield glossed with purple ; rest of under-surface dark greyish-brown. Habitat : North West New Guinea. The bird from Duke of York Island and New Ireland (*G. (P.) b. johannæ*) has a paler grey head and breast-shield, a very dark form (*G. (P.) b. solomonensis*) from the Solomon Islands and other races from the Admiralty Islands, St. Matthias and Bougainville Islands.

STAIR'S GROUND-PIGEON (*G. (P.) stairi*). Unlike any other Fijian Pigeon seeks its food entirely on the ground. Here it runs as quickly as a Quail, springs to its wings on the least alarm, and glides through the underwood to a place of safety with the rapidity of lightning. It breeds in low bushes, making a flimsy nest, never out of the reach of a man's hand, and lays two white eggs. In captivity it is so timid that when approached it instantly runs into a corner and crouches down just as a Quail would do. This species has been exhibited in the London Zoological Gardens, but not since 1883 I think, but it has been imported into America recently. Forehead, sides of head and neck with breast-shield vinaceous-rufous, becoming white on chin and

round the breast, the breast bounded behind by a deep maroon band ; back of head and neck slate-coloured shot with green ; rest of upper surface glossy brown shot with bronze and purple ; lesser upper wing-coverts edged with purple ; rest of under-surface dark brown. Female smaller with shorter bill ; breast-shield pale chocolate. Habitat : Samoa, Fiji and Tonga Islands.

The WHITE-BREASTED GROUND-PIGEON (*G. (P.) jobiensis*). This fine species has been imported in some numbers during the last few years, so that specimens have been distributed not only in England and France but also in America, where it has been called the Black-fronted Amethyst. It has shown itself quite ready to nest in captivity, but I do not think any account has yet been published. General colour slaty-black, feathers of hind neck, mantle, upper back, scapulars and upper wing-coverts edged with beautiful amethyst-purple ; lores, sides of forehead, superciliary stripe as well as throat and breast-shield pure white. Female smaller with an olive tint on lower back and rump and with the black and white parts not so pure. The young are brown, with narrower superciliary stripe and only the throat whitish. Habitat : New Guinea, Jobi, Duke of York Group and New Britain.

The WHITE-FRONTED AMETHYST GROUND-PIGEON (*G. (P.) kubaryi*). Mr. E. W. Gifford, of Oakland, California, who specializes in rare species of Partridge Pigeons and Quail Doves, has this Dove in his collection, but I have not come across any mention of the bird in Europe. As may be expected from a bird of its habitat, next to nothing seems to have been written about the wild habits of Kubary's Pigeon, it seems to be confined to the interior of the woods, where it lives chiefly on the ground and therefore easily escapes observation. This species is very like the last described, but differs in having the back of the head and nape slate-grey, the purple of the mantle is even more brilliant and the forehead and anterior part of the head is white. Habitat : Caroline Islands.

The BUFF-HOODED GROUND-PIGEON (*G. (P.) xanthonura*). This is another species which Mr. Gifford has. It was formerly known under the name of *pampusan* which Bonaparte made the type of his genus *Pampusana*. Male : Crown, occiput, and hind neck rusty rufous ; remainder of upper parts dark bronze-olive, feathers of mantle and

wing-coverts broadly margined with purple violet ; forehead, anterior part of cheeks and crop-shield dull white tinged with buff, rest of under parts brownish-black ; the outer tail feathers have a broad subterminal dusky brown band. Female has the upper part of the head cinnamon, the back has an olive lustre, and the upper wing-coverts have rufous edges ; under surface more rufous. Habitat : Marianne Islands, Guam, Carolines and Mackenzie Islands.

The GREY-HOODED or MARQUESAS GROUND-PIGEON (*G. (P.) rubescens*). Until the year 1920 this species was only known from an old plate published in 1814. An American expedition then visited the Marquesas Islands and brought back a number of living birds ; in 1923 Mr. Gifford received no less than thirty-one specimens ; he put them to very good use, so that soon a number of young birds were reared and distributed in the zoological parks at New York, Washington and Milwaukee ; one male bird was sent from New York to the London Zoological Gardens in 1924. In France, Madame Lécailier has reared at least seven young ones and M. Decoux has some, so that the stock has become widely separated, and with judicious exchanges should be kept up for many a year. Mr. Gifford gives a very full account of his birds in *The Auk* for 1925, p. 388, illustrated with photos of the living birds.¹ Male : Head, neck and breast-shield grey, rest of plumage fuscous-black, the back, scapulous and lesser wing-coverts broadly margined with iridescent violet purple ; middle of back glossed with dark green ; the primaries and tail feathers have their basal half white, very conspicuous in flight. Female duller with the grey head and breast much less defined. Habitat : Marquesas Islands.

The BLUE-HEADED PIGEON (*Starnænas cyanocephala*) is not uncommon in Cuba in the extensive forests where it is rocky ; it seems to avoid the open country, it walks about slowly seeking its food, which consists of seeds, berries and small snails, among the dead leaves. After feeding it will fly into a tree and perch on a leafless horizontal limb. Nesting takes place in April and May ; the simple nest, composed of a few twigs, being usually placed in the tops of parasitic vines. It lays two rather round white eggs. Though never common it has been represented

¹ See also AVICULTURAL MAGAZINE, 1925, p. 79.

in most collections fairly frequently since the middle of the last century ; it was first bred in London in 1870. Quite lately Mr. Gifford had some in America and M. Decoux has bred it in France. With the cutting of the forests in Cuba and planting of sugar-cane their natural habitat there is being gradually eliminated and the birds are becoming more scarce each year, so that this is another case of trying to prolong the life of the species by breeding it in captivity. Crown rich cobalt blue, bordered by a black line which passes through the eye ; above olive-brown ; a broad white band from chin, below eye to back of head ; throat and chest black bordered below with a semi-circular white stripe ; front and sides of black area tipped with blue ; rest of under surface dull ferruginous. Female very similar but smaller and more slender and not so upright in carriage. Habitat : Cuba and Florida Keys.

The WONGA-WONGA PIGEON (*Leucosarcia melanoleuca*). This fine species is fairly common on the Blue Mountains in New South Wales, where one or two may be found feeding on the ground on the berries that fall from the " Lilly-pilly " trees. When startled they rise with a clapping noise ; when perched in a tree it will remain quiet until all danger is passed. It nests on a horizontal branch in scrub or forest, placing its frail nest at a height of from ten to twenty feet from the ground ; the two eggs are smooth, glossy and pure white.

Many examples have been shown in the London Zoological Gardens. Its large size and handsome pied plumage make it very attractive, but its monotonous penetrating song of " *hoo-hoo-hoo-hoo* ", which can be heard half a mile away, is a decided drawback. It readily goes to nest. Upper surface leaden-grey ; forehead and chin white, a whitish line under the eye to the ear-coverts ; cheeks pale grey, gradually deepening downwards and continuous with the leaden grey of the breast, which is divided by a broad semi-circular white belt ; chest white in the centre, feathers of flanks and abdomen with black triangular subterminal spots. Habitat : South Queensland, New South Wales and Victoria. The bird from North Queensland has been called *minor* on account of its smaller size.

The GREEN-NAPED PHEASANT-PIGEON (*Otidiphaps nobilis*) is the type of a most remarkable genus. Some Doves and Pigeons closely resemble Partridges and Quails, but none is more Gallinaceous-like than

Otidiphaps which might be well mistaken for a small species of Pheasant, indeed Salvadori, who was the great authority on the *Columbiformes*, nearly described it as a new species of Megapode. The tail has twenty feathers. The Green-naped Ground-Pigeon is not uncommon in West New Guinea, but is extremely wary and very seldom seen. It is essentially a ground bird, and when walking carries its tail up and has much the appearance of a Bantam Fowl. The call is not easy to describe, but is a sort of moaning "coo" and can be heard at a great distance. These birds are very rare in captivity, but an example was received by the London Zoological Society in May, 1929, and I believe it has been imported into America. General colour including occipital crest greenish-black, more bluish-purple on rump, lower neck and sides of breast; hind neck bronze-green, mantle a golden lustre; back and wings purple-chestnut; bill and legs, which are very long, vermilion. Habitat: West New Guinea and Batanta. Replaced in South-East New Guinea by the GREY-NAPED GROUND-PIGEON (*O. n. cervicalis*) which inhabits the dense scrub far inland, lives on the ground, and in habits resembles the *Gourida*. This ground bird is found only inland and in high country, it has a very plaintive note when calling, which when imitated, brings it to one, and it then stalks to and fro with tail erect and spread, challenging the intruder. When disturbed it will fly into low trees and bushes, but is quickly away again. The nest is composed of a few twigs scraped together at the foot of a low tree in a sequestered place. The egg is pure white. Differs from typical *nobilis* by its shorter crest. The nape is grey instead of green and the lower back and rump are greener. A solitary bird of this form was deposited at the London Zoological Gardens on 18th July, 1923, and is still there.

The NICOBAR PIGEON (*Caloenas nicobarica*). This remarkable bird, together with another rather doubtful species, make up the sub-family *Caloenadinæ* or Hackled Pigeons in which the feathers of the neck are long and narrow and those on the head are short, the powerful hooked bill and strong feet with formidable curved claws produce a remarkable Vulture-looking type, reminding one rather of a Vulturine Guinea-fowl. In captivity they can be fed on wheat, dari, hemp and maize; they are especially fond of the last named. The Nicobar Pigeon may be termed

of insular habits ; in the Solomon group they leave the mainland of the larger islands and resort by night in thousands to roost on the small uninhabited islands off the coast. They seek their food on the ground, walking hither and thither, stopping every now and then and tossing the leaves aside, dig into the ground with their bill. In the Nicobars the small uninhabited almost inaccessible island of Batty Malve is the only spot in which these Pigeons roost and breed, the birds are found in thousands and almost every thick bushy tree contains several nests ; only one egg is laid in each nest. It breeds freely in captivity and is a very favourite cagebird throughout Asia. Owing to its large size and rather blundering ways it requires plenty of space. General colour metallic green with golden-coppery reflections, head and quills more slaty-black ; tail and under tail-coverts pure white. The male has a black knob just behind the nostrils. Female smaller, duller, the neck hackles are shorter, the knob on bill only slightly developed. Young birds have no hackles, and the tail is slaty with greenish gloss. Habitat : Nicobars to Celebes and Malay Archipelago. The birds from the Pelew Islands (*c. n. pelewensis*) are smaller and bluer coloured.

The CROWNED PIGEONS are placed in a distinct family *Gouridæ*, they are the giants of the Order and were only exceeded in size by the extinct *Raphi* or *Dodos* and *Solitaires*. They are furnished with large crests composed of feathers with separated barbs and the tarsus is covered with small hexagonal scales, the tail has sixteen feathers ; their large size makes them unsuitable for any but the largest enclosures. The LITTLE CROWNED PIGEON (*Microgoura meeki*) from the Solomon Islands, if ever imported, from its much smaller dimensions would make a very attractive and more easily accommodated species in our aviaries.

The CROWNED PIGEON (*Goura cristata*) which has priority over the generally used name *coronata*, is a magnificent bird over $2\frac{1}{2}$ ft. in length. It spends most of its time on the ground in search of food ; its crop has been found full of small berries. It seems to be remarkably tame or stupid, so that it may easily be approached within gun-shot. The nest is placed in a tree. It lays one white egg as big as a large hen's egg. It has frequently been bred in confinement. General colour bluish-slate-grey, darker on wings and tail, the latter with apical



VICTORIA'S CROWNED PIGEON

pale grey band ; a black band from the lores to postocular region, broader where it surrounds the eye ; a broad band across the back and the tips of the upper wing-coverts dark chestnut ; wing-speculum formed by the bases of the central wing-coverts white ; the bright red iris is a very beautiful feature. Habitat : North West New Guinea and Western Islands. SCLATER'S CROWNED PIGEON (*G. c. sclateri*) was frequently met with by the British Ornithologists' Union Expedition in Dutch New Guinea. On the canoe journeys up the river, parties of two or three were seen in the early mornings searching for aquatic life along the muddy banks. When disturbed they did not immediately take flight, but with raised wings pirouetted around for a few seconds and then flew to the nearest high tree. They were foolishly tame and would allow several shots to be fired at them before reluctantly taking flight. When seen crossing rivers the flight was strong, straight and heavy. The remains of small crabs were found in their stomachs. Has anyone ever tried these birds with shrimps in captivity ? This Crowned Pigeon used to be very rarely imported. The first specimen was exhibited in London in 1903, but quite lately a large number have been brought over so that this form should be bred shortly. Differs from typical *cristata* by having the back blue-grey and the lower fore-neck and upper breast purple-chestnut. Habitat : Central and South New Guinea. SCHEEPMAKER'S CROWNED PIGEON (*G. c. scheepmakeri*), the bird known as *albertisii*, was formerly considered to differ from *scheepmakeri* on account of its paler purple-chestnut and more extended colouring of the flanks and larger and whitish-grey wing-speculum as well as the paler tipped crest, the fact apparently being that the type of *scheepmakeri* is probably an abnormally dark bird, but as this is the older name it must be used for this form. It has been imported to France, but does not seem to have reached England. Differs from *sclateri* by having the smaller wing-coverts greyish-blue instead of chestnut, the wing-speculum is whitish-grey instead of pure white, and the tips of the crest feathers are paler grey. Habitat : South-East New Guinea. The birds found in Waigou, Mysol and Batanta resemble typical *cristata* but are smaller ; they are called *G. c. minor*.

The VICTORIA CROWNED PIGEON (*G. victoria*) is even handsomer than the common species, as the beautiful feathers of the crest are spatulated

at the tip, each spatula being edged with white. It is a freely imported species and hybrids have been produced between it and *cristata*; in general appearance it resembles *scheepmakeri*, but the breast is rather a darker shade of purple-chestnut and the wing-speculum is bluish-grey. Habitat: Jobi and Mysori Islands also Geelvink Bay, North-West New Guinea. BECCARI'S CROWNED PIGEON (*G. v. beccarii*) from Northern New Guinea is larger and stronger with the spatula of the crest feathers sometimes 40 mm. broad, and the bird from Huon Gulf (*G. v. huonensis*) is again still larger and bluer above. Habitat: North-East New Guinea.

The last family to be dealt with consists of the LITTLE DODOS or *Didunculidæ*, perhaps the most interesting of the whole order on account of its kinship to the Dodo. Characterized by its thick hooked bill, the lower mandible serrated near the tip which is truncated, the nostrils oblique and the front of the tarsus very imperfectly sealed. The family contains but a single species. In captivity it would probably be most suitably fed upon banana, potato, apples, etc., it will also, however, eat bread, almonds, hemp and other seeds.

The TOOTH-BILLED PIGEON (*Didunculus strigirostris*). The habits of this most interesting bird seem to have undergone a change in recent years. Formerly it was a ground bird, living, feeding and even nesting on or near the earth, with the result that it was nearly exterminated by wild cats, etc., and the eggs and young were an easy prey to rats, but now the birds almost invariably roost upon the high branches of trees, and the nest appears to be generally situated in the fork of a tree. It is, however, very doubtful if even this will save the species from the fate of its larger and better known relative. It feeds on plantains, yams and other fruits and berries. It is exceedingly shy and timid, its flight is powerful but very noisy. Only a few specimens have been imported and it has always ranked as one of the rarest of the Pigeons in confinement where it has laid eggs. Head, neck, mantle and upper breast metallic blackish-green; lower breast and abdomen brownish-black; rest of plumage chestnut, quills browner, sexes alike. The young are brown with crescentic rufous bands on feathers of upper parts and breast. In the adult the large bill is orange, naked orbital skin fleshy-red; feet ochraceous-red; iris brown. Habitat: Upolu, Savai and Tutuila, Samoan Islands.

PARRAKEETS AT FOXWARREN PARK

By A. EZRA, O.B.E.

This is the fourth year of my experiments in trying to breed the yellow and blue varieties of the Alexandrine (*Palæornis nepalensis*) and Ring-necked (*P. torquata*) Parrakeets. The first two years, when I mated the blue cock Alexandrine to a lutino hen, the eggs were all infertile. Last year the hen lutino mated to a green cock had two young. Both of these are green. A green hen, mated to the blue cock Alexandrine, last year only got as far as eggs, which were again clear. This year the lutino hen mated to the same green cock as last year had two young, as early as February. These were found frozen to death in the nest during the bitterly cold weather we then experienced. However, she went to nest again, and has reared three young, which are all green. To my great surprise the blue cock Alexandrine, with his mate of last year, reared four fine healthy young ones for the first time. These four birds are also all green. Practically all the young left the nest about the first week of June and they do look a fine lot. Now that I have got blue-bred and lutino-bred young, I hope, with luck and a lot of patience, to be successful in breeding a blue and a yellow Alexandrine. Both these pairs of Alexandrines are wonderful parents and the devotion they show towards their young is extraordinary. They never objected to my visiting the aviary but would always fly into the nest-box on my approach and sit on the young to protect them. I was not so lucky with the Ring-necks, but this is the first year I have had pairs in breeding condition and I hope for success next year. I had three breeding pairs of these, and all went to nest and had fertile eggs. One pair had two young, and after they were four days old I found them both dead in the nest. Their crops were full of food, but I think the hen bird did not brood them one night, with fatal results. The other two pairs had four and three eggs respectively, but both lots incubated the eggs for a fortnight and then left them. They were all fertile and the chicks perfectly formed. I am hoping to have some yellow Ring-necked young next year from a pair of really good lutinos. In this pair both the cock and hen are

perfect yellow birds with pink eyes and should produce some yellow young. My good old pair of Barrabands had six young this year. One died, but the rest are all flourishing and will soon leave the nest. These birds have reared young every year for the last four years, and seem to have an extra one every year. My Crimson-wings, Layards, and Derbyans have not attempted to nest, but I hope they will do so next year.

THE BLACK-THROATED CROW-TIT

In a small consignment of birds recently received from Shanghai were eight specimens of this remarkable little bird, generally known as the Black-throated or Grey-headed Crow-Tit or Parrot Bill, and scientifically as *Psittiparus*, *Paradoxornis* or *Scæorhynchus gularis*. It inhabits the Eastern Himalayas extending as far as Fokien in China.

The top of the head and nape are grey, sides of face and under parts white; brow-stripe black; ear-coverts pale grey; the upper parts of the plumage rufous-brown. The bill is almost Parrot-like, and when handled the bite is quite as severe as that of a small Parrot. In size this species about equals a House Sparrow and the sexes are alike.

This is a very active little bird, Tit-like in its movements, but with weak powers of flight. It has the appearance of being a hardy species and it is to be hoped it may consent to breed in captivity. It is said to construct an open nest composed of shreds of grass and of bamboo leaves and stems and to lay three to four eggs to a clutch.

The food of the Crow-Tits consists of insects and also seeds of all kinds.

Crow-Tits are an entirely new group to aviculture and at present we know very little about them, but they have the appearance of very attractive birds, though they are proving destructive to vegetation.

D. S-S.



[Photo, D. Seth-Smith.

BLACK-THROATED CROW-TIT (*Scævorhynchus gularis*).

[To face p. 166.

REVIEWS

THE BIRDS OF AYRSHIRE¹

The county of Ayrshire, situated on the south-west of Scotland, contains some of the finest and most varied scenery in the British Islands, fertile valleys covered with rich crops, wild moorlands covered with purple heather, rugged mountains, glens, rivers, and gorges, lochs and magnificent stretches of woodland. The shores are varied also, with sandy stretches and rocky beaches surmounted by rugged cliffs, while off the coast, though still within the boundaries of the county, is that magnificent haunt of sea birds, the rock Ailsa Craig.

With such varied conditions the avifauna is naturally rich, and it was fitting that a reliable book on the birds of that county should be produced. This has now appeared and is all that such a work should be, an accurate record of the birds of the county, well printed and beautifully illustrated with photographs and containing a good map. Moreover, it contains one very charming coloured plate of the Greenland Falcon.

The possession of the splendid rock, Ailsa Craig, gives special interest to the avifauna of Ayrshire, for it is one of the most wonderful homes of sea-birds in the British Islands. The author estimates that during the breeding season there are no less than 14,000 Gannets on the rock, besides other interesting species such as Ravens and Peregrines:

REPORT ON HERONRIES

The April and May numbers of *British Birds* have been chiefly taken up with an exhaustive report on the Heronries in England, Wales and Ireland, the information for which has been derived from a large number of correspondents, and the results of their reports collated and the Report prepared by Mr. E. M. Nicholson. The two parts have now been bound together as a booklet, which can be obtained from the publishers of *British Birds*, at the price of 3s. 6d.

¹ *The Birds of Ayrshire*, by E. Richmond Paton, B.A. (Camb.), and Oliver G. Pike, F.Z.S. London: H. F. and G. Witherby, price 21s. net.

Not only does the Report provide delightful reading for all who are interested in one of the finest of our native birds, but it shows evidence of a vast amount of labour most carefully performed. Never before has such an exhaustive story of the Heron been written. One is pleased to learn that in these days when so many fine species have gone, the Heron is found as a breeding species in every part of England and Wales, and that, in spite of its fondness for fish, the majority of colonies are actively protected during the breeding season by the owners of the land upon which they are situated. The time has long since passed when Herons were eaten—"skinned, stuffed, and roasted like hare, with strawberries and cream to follow." May they long survive in their present numbers to add to the beauty and interest of our country.

SWANS ON THE LAKE OF GENEVA

We are glad to be able to publish the very beautiful photograph taken by our member, Miss Alice Hutchinson, in January last. Of all the waterfowl the Mute Swan is the most ornamental when seen in suitable surroundings such as those shown in the accompanying picture.

CORRESPONDENCE

AN AMATEUR'S EXPERIENCES

SIR,—Having read Mr. Appleby's notes in last month's Magazine, I feel sure that he has given many the lead, that only keep the more common of the foreigners through lack of space or purse, to record their successes and failures.

If through expense one is unable to keep the rarer birds, a great deal of enjoyment is obtained by reading results of those who do.

Like Mr. Appleby, my birds are the general run of cheap foreigners one can readily buy at almost any time of the year, but I think that I must have had a little more luck than he has.

My first birds were Zebra Finches, which made a nest in a small box under a thatched roof in large open flight. Every bird in this aviary must have been aware of his attention to duty. When they



[Photo, Miss A. Hutchinson.]

SWANS ON THE LAKE OF GENEVA, MONTREUX.

[To face p. 168.]

alighted anywhere near, off went his steam kettle hiss, and having got rid of them for a while, he would then sound his penny trumpet song.

A more cheeky little devil I have never seen. Not content with his own domestic duties, he even tried to help a pair of Long-tailed Grass Finches built their nest.

Three nests of young, six in nest, I had from this pair, and while the parent birds were feeding them I supplied mealworms, ants' eggs, and as many flies as I could gather; these were given to the young as soon as the parents were supplied with them. All young reached adult age. Now this year the Cock Zebra has succeeded in mating up to the hen Long-tailed Grass Finch, despite the cock Grass Finch protesting. Already they have eggs, but now I find the hen Grass Finch has gone back to her rightful mate, so, nothing daunted, the cock Zebra Finch is doing his best to make something of the results by sitting hard himself.

The hen Zebra Finch is now playing up to her lawful mate, so this domestic triangle should be interesting.

White Java Sparrows in the same aviary turned out two nests, five in the first nest, four in the second. The first nest contained three white and grey, two biscuit and grey; second nest three white and grey, one biscuit and grey; and all were reared.

I should like to mention that seldom do you get a pure white youngster from pure white birds; they are generally, in their first plumage, grey and white and biscuit and grey. After the first moult the young grey and white become pure whites, like the parents, and the biscuit-coloured ones become the ordinary grey Javas. When feeding young I noticed the parents supplied as much young grass as they could take. The grass in question was canary and rye grass specially sown in the aviary for birds. When I cut some of this short, the Javas were more eager to get at shoots close to the ground.

Diamond Doves wanted to nest in March, but I kept them back till all the birds were let into the large open flight, which has plenty of natural cover for birds. The first nest was built high up on the top of a Hartz mountain cage; as it looked insecure, I started to build the nest up a bit for them, which they tolerated, and the result was one young cock Diamond Dove. This was the only young Diamond Dove

reared last year, but the year before I had two nests, two young in each, and all reared.

Pekin Robins reared two nests, first nest in a privet bush, four healthy young Robins reared, two cocks two hens.

Owing to its raining very heavily at the time they had young, I put sacking over that part of the flight as the privet bush was in an exposed position. A second nest in a box bush resulted in three youngsters, two hens and one cock; both nests reared.

When the young appeared the parents were given mealworms, but readily left them alone when I supplied gentles and wasp-grubs, the latter they seemed to prefer to all the other live food; also ants' eggs and spiders were provided. The young of the first nest helped the parents to feed the young of the second nest as soon as they spotted the parents doing so. One young cock of the first nest was feeding the young of the second so well that I had to catch him up as he was starving himself.

Pairs that had eggs which were not hatched were as follows: Long-tailed Grass Finches, Avadavates, Orange-breasted Waxbills, and Black-headed Nuns. How many the Pekin Robins accounted for I am unable to say.

I found that when a good egg-food or hard-boiled yolk of egg was given to the Pekins they did not trouble so much about the eggs of other birds. One hen Pink-cheek Waxbill which I have had three and a half years, and one Orange-cheek Waxbill cock three and a half years, mated last year and again this. Last year they had eggs, but nothing came of them. This year they are trying again, but I do not think the result will live up to expectations.

Birds breeding this year in the same aviary are the two Waxbills mentioned, Diamond Doves, Fawn and White Bengalese, White Javas, Cutthroats, Zebra Finches, and Long-tailed Grass Finches, a bit of a triangle previously mentioned, Orange-breasted Waxbills, Avadavats, Goldfinches, Bullfinches, Siskins, Linnets.

I should have mentioned that a pair of Indigo Finches reared five young to twelve days old behind a creeper-clad post. Thinking that the hen was missing, not having seen her for some time, I felt in the shrubbery, and found her sitting on a nest, but my inquisitiveness

was dearly paid for, as shortly after she deserted the nest and all the young died.

This aviary in which I have had breeding results has a sheltered part, eight feet long, four feet wide, seven feet high, half of which is enclosed entirely, with a large window for light in front, all seed-hoppers and drinking fountains being in this enclosed part. The birds have access to the other half through a cut-away portion in the centre partition.

During winter months one of Thomas' safelights provides warmth for those that need it. The other half is covered all but in front, which has open wire with glass half-way up to prevent mice from entering.

The British birds previously mentioned generally keep in the enclosed half without heat; they only pay this part a visit when feeding, as no seed, apart from millet sprays, is provided outside this section.

Attached to this shelter is an open flight 30 feet long, 12 feet wide, and 14 feet high, well planted with shrubs, and seed is sown according to the birds kept, so that in due course they get their natural food.

On my walks, when I can spare time from my work, I always return with seeding grass when obtainable, for the Budgerigars, of course in their own aviaries. Also all forms of seed and plants which are in season fit for my stock. This adds great interest to a walk, and you find that you can before long, rub along as a good amateur botanist.

During the winter months I grow seed in boxes, and when about one inch high give this to the birds. It proves a good titbit and seems to answer well until Spring arrives.

Although I keep a medicine outfit for them, it is seldom used. By careful observation one is able to note a sick bird, and cage it up for a time, giving slightly different food if necessary, quietness, and warmth, and it is soon fit as a rule.

If birds kept in a general aviary have similar feeding habits, I don't think one need worry about over-feeding, especially if the flight is large enough for exercise.

Trials and tribulations I have had, and get at times, but each test one gets brings further knowledge along with it. All through last winter I had no losses amongst my birds.

W. H. POTTER.

CAROLINA AND MANDARIN DUCKS

SIR,—I read with interest the remarks by the Editor on the Carolina and Mandarin Ducks naturalized in and about the Berlin Zoological Gardens. As to the superseding of the Mandarin over the Carolina as an indigeneous species, there is a point apart from climatic conditions and an important one, i.e. "new blood". In the case of the Mandarin, new or wild caught birds are always being imported into this country. The males, being paired with our hand-reared females, gives stamina, whereas few, if any, Carolina, that is wild caught birds, are imported. Here, certainly, where we rear a good number of both species, the Mandarin is far the easier to rear in the young stage, but the Carolina is as hardy, if not hardier, when past the difficult period—the first three weeks. The climatic difficulty with Carolina, we find, is that the young fret and do not feed well unless allowed access to water, be it ever so small a puddle; and this is fatal to them in cold or very wet weather. In fine and sunny weather they do well.

As to straying I have had little experience of full-winged birds, but one pair we did have full-winged remained and nested about the place for a number of years. I think it is probable the birds would not stray if they could find the quarters they want, or rather that suited them—wooded ponds and streams with old dead and hollow trees for nesting in. While writing about Carolina it is, I think, of some interest to record that we had one nest in 1927, two in 1928, and three this year of Carolina on the ground, like any other surface-feeding Duck. Also this year a Mandarin nested and sat in a bunch of thick grass, making a nest in the fashion of a Teal. Also that young have just been hatched from an adult Blue Snow Goose, and a one-year-old ♂; incubation period 25 days.

J. C. LAIDLAY.

NUMBER OF EGGS LAID BY PARRAKEETS

SIR,—Although they always receive the same food and are kept under the same conditions, I find there is a rather curious variability in the number of eggs laid each year by many of my breeding pairs of Parrakeets. For example, a pair of Yellow-rumps have a record of

3, 4, 5, 3, 6, in five consecutive seasons. A pair of Malabars have had 2, 4, 3, 3. A Crimson-wing has laid 7, 4, 2, 3, 3. Occasionally, also, a hen will, after a number of years, lay twice in a season and not do so again for many years more. This happened in the case of a lutino Ring-neck.

The date on which a breeding hen lays is also very variable, but this may be due to the weather.

TAVISTOCK.

LIVE FOOD

Referring to the letter which appeared under the above heading in the last number of this journal, Mr. M. W. Wolf, of 5 Norfolk Road, Merton, London, S.W. 19, writes: "I shall be glad if you will make it known that I can supply regularly any quantity of live ants' eggs throughout the entire season. My collections reach, every year, a total quantity of from 200 to 300 lb., and as they are English live ants' eggs they are always quite fresh and clean and cannot be compared with the imported eggs which, owing to long transit, often arrive in a more or less putrified state."

AVICULTURAL NOTES

By THE EDITOR

We learn from the *Adelaide Advertiser* of 10th April that the Minister of Customs, Mr. Gullett, when at Islington, England, many years ago, saw a number of Australian Finches, which had been exported from Australia for sale to fanciers, shivering in the cold and in such a neglected state that he formed a resolve that whenever the opportunity presented itself he would stop this trade in Australian birds. Mr. Gullett has now attained his object, and announces that in future no permits will be issued for the export of birds for trade purposes.

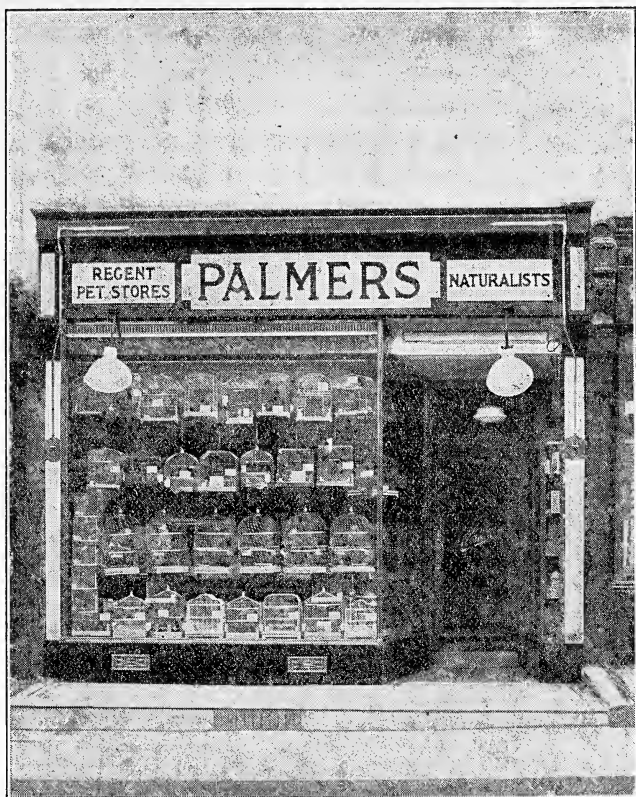
Mr. Gullett has acted as every true lover of birds and of humanity would have done had the opportunity occurred, for the manner in which Australian Finches have been imported and confined in dealers'

shops in years gone by was nothing short of scandalous, and in putting a stop to it the Minister of Customs has acted in the best interest of his country and of its avifauna.

Mr. Gullett added, if the report is correct, "There will be no restrictions, however, on birds taken by sailors and passengers as pets or, in the case of exports, in the course of exchange between zoos." It is to be hoped that the authorities will also see their way to allow private aviculturists in Australia to make exchanges of birds bred in their aviaries with their fellow aviculturists in other countries.

There can be no doubt whatever that aviculturists as a whole are a more humane body than those who collect birds purely as museum specimens. They keep birds because they love them and they wish to study their habits. Aviculture has certainly added much to our knowledge of the life habits of birds and increased enormously the interest taken in bird life, and while we must all heartily approve of the prohibition that has been placed on the wanton cruelty that has occurred in the past, we do hope that the authorities will not be so dogmatic as to place any restriction upon the exchange of birds by true aviculturists with their fellow aviculturists overseas.

The Avicultural Society of America has for some time past used the columns of *The Pet Dealer* for the publication of its transactions, but since the commencement of the present year it has issued a separate journal. By a regrettable oversight the first two numbers appeared under the title of *The Avicultural Magazine*, a title that was bound to lead to considerable confusion, seeing that another journal of that name had been in existence for more than thirty years. On this discrepancy being pointed out, however, the name was changed to that of *Aviculture*, by which title the journal will in future be known. The number for May, which is just to hand, contains articles on "The Cuban Trogon," by Karl Plath, "Some Notes from Canada," by H. B. Donovan, "A Short Description of some Australian Finches," by R. Hodgkins, and "Some Partridges I know," by Geo. H. Corsan, sen.



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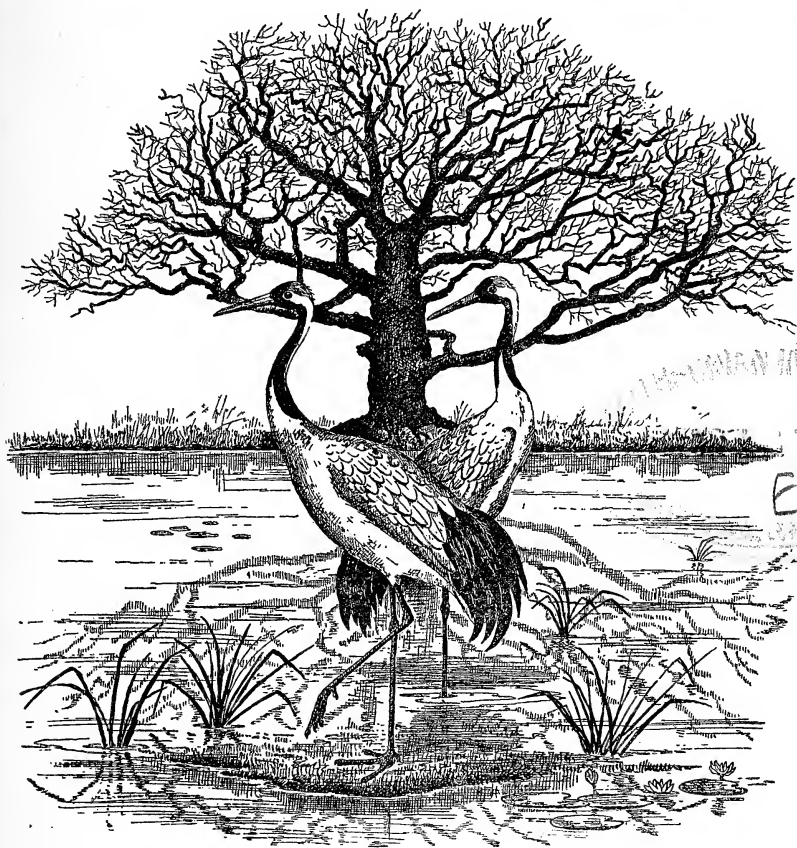
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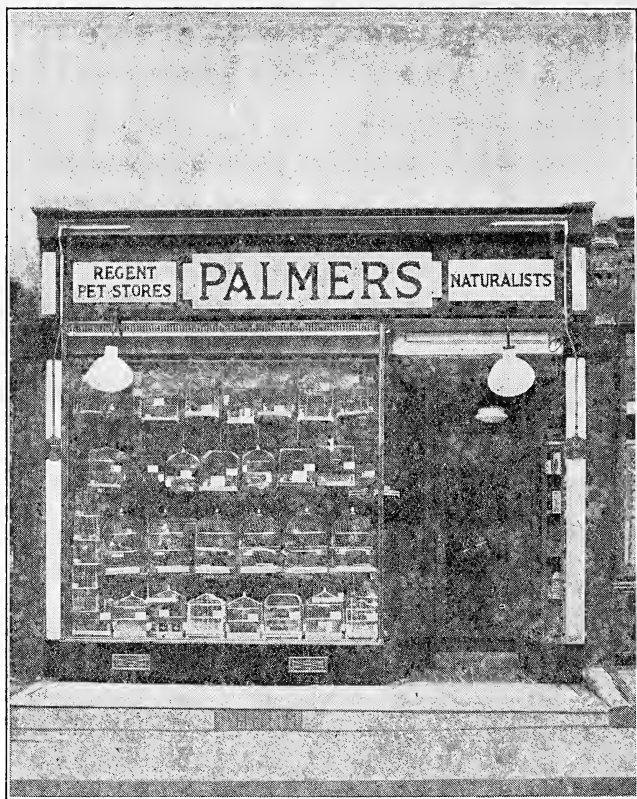
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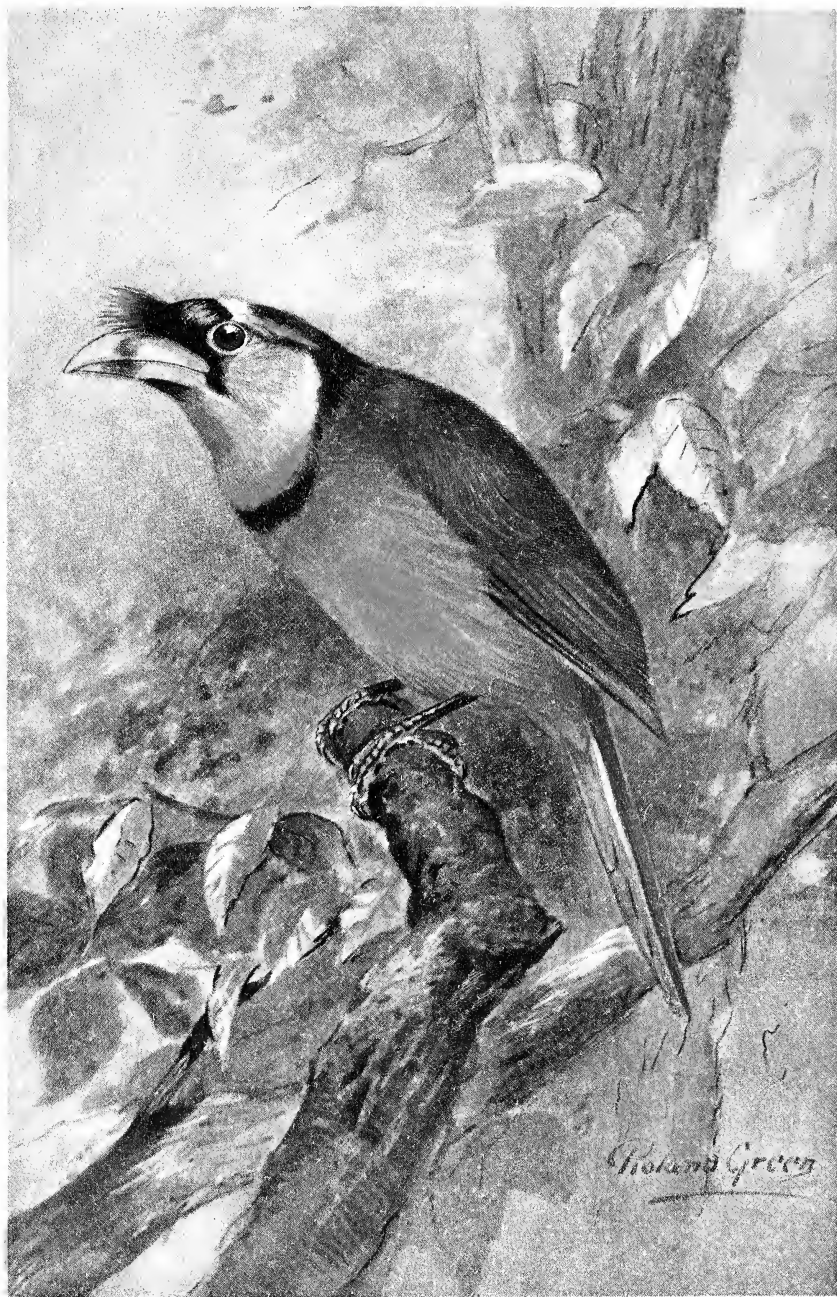
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AUGUST, 1929.

THE FIRE-TUFTED BARBET (*PSILOPOGON* *PYROLOPHUS*)

On his return from a recent collecting expedition Mr. Walter Goodfellow brought home a single specimen of this striking species, and Mr. Spedan Lewis very generously presented it to the Zoological Society. It is the first of its kind to be exhibited in the Zoological Gardens, and apparently the first imported to England, though the species has been imported into France.

This is the only species of its genus, and inhabits the mountain regions of Perak in the Malay Peninsula and Sumatra. It is said to be not uncommon where conditions are favourable to it, occurring in parties of five or six individuals, climbing about the trunks and branches of the forest trees, and feeding upon fruits, berries, and insects.

The specimen at the Zoological Gardens, of which a coloured plate appears herewith, is very tame and a most attractive bird.

D. S.-S.

BREEDING THE WHITE-CAPPED STARLING (*HETEROPSAR ALBICAPILLUS*)

By ALFRED EZRA

I bought a pair of these interesting birds three years ago, and as they seemed to agree together I put them in a small aviary by themselves. The first two years they did not lay, although they built a nest

in a basket inside the aviary shelter, using dried leaves, grass, and moss. The nest was a very deep one and almost dome-shaped. This year they built a similar nest in the same basket, and at the beginning of May I found the hen sitting on three eggs. One young was seen just hatching on the 13th May, and later on there were three young in the nest. Only one lived, to leave the nest on the 8th June. He started feeding himself on the 14th, but was weak in his flight and did not fly up to perch till the 24th, by which time he had grown into a fine healthy bird. The young one was reared on insectivorous food, mealworms, gentles, ants' eggs, and grasshoppers, and both the parents were most attentive to its wants and took good care of it. The young bird's colouring is a good deal duller than that of the adult birds, with grey on the top of the head and black under the eyes. The eggs were about the size of a Blackbird's eggs, pale blue with a few red and brown spots. As I write, on the 4th July, the bird is quite strong and flies about everywhere. As it has taken me nearly three years to rear this bird, I am more than delighted with the success and think it is the first of this species to be bred in captivity.

AVICULTURE IN NEW JERSEY, U.S.A.

By PAUL F. STILLMAN

Having been a member of the Avicultural Society for some few years I have wanted to tell my fellow members some of my experiences, in the hope that it may be of interest to them, as, judging from the articles in our Magazine, and in the volume called *Aviculture*, which I recently had the pleasure of reading, my experiences seem to differ in many particulars from those of fellow members in England. Here, where we are located, is what is termed the Middle Atlantic States, and if there is any more abominable climate in the world, I should like to find it. According to the calendar we have four seasons, but according to conditions I think they must be jungled into one as, not infrequently, we have winter when the calendar shows we are having summer, and the others seem to be the same. It is, therefore, not easy

to know how to provide for one's pets, particularly all the "tropicals", which are my special hobby.

I notice, in some articles, that some of our members have indicated that some of the Tanagers, such as the Banana Quit, are delicate. I have kept these birds, and a host of others, and have had them repeatedly in a temperature of 20 above zero, and never were birds in better condition. Now perhaps a word about my feeding may be of interest, because we all admit that food is the most important point in the care of our pets. I have never used any of the professionally prepared foods, but have experimented with various forms that I have made myself, and the following is fed to all my soft-bill birds and they seem to thrive on this mixture. We have in this country a preparation known as "Rose's ground meat and bone meal", which, I am told, consists of 67 per cent No. 1 hard wheat or better, and the balance of ground meat and bone meal. To this I add hard-boiled eggs and scalded ant eggs. These are rubbed together so that it is impossible for a bird to obtain any one ingredient. The whole is placed in shallow pans in which a ripe banana has been placed. Thrushes, Larks, Tanagers, Babblers, Bulbuls, and a host of others thrive on this mixture. I do not follow the course pursued by many others by changing my food to suit the individual of different species that may inhabit my aviaries. At the present time I have a Black-necked Minor who is doing beautifully on this mixture. Mealworms are fed more as a treat than as a regular part of the diet. At one time I had, I believe, the honour of having in my possession the only Gold-headed Manakin, but incidently, this Manakin was certainly beautiful but absolutely dumb and uninteresting. Another point that I have found is that birds can thrive on food that is not served freshly every day. My only bad loss was in a flight I once had where the aviary was in a shady, woody place that was damp. Under the conditions I faced at this time I have had losses which I do not like to think of now.

At one time I was the proud possessor of an Abyssinian Splendid Sunbird. I bought this living jewel in one of the coldest spells we had in a cold January. At the time of purchase the few feathers—which were so few you could count them—were plastered to his naked body, the importer having been feeding principally on honey. There was

a question in my mind whether to risk a one-hour journey to my home, or to leave him in a warm store, but I decided the risk of remaining was the greater. As soon as we reached home a Majestic Electric Heater was turned on his box cage at a distance of 1 foot, and a tepid bath was supplied him. The intense pleasure of this combination to this little jewel was absolutely indescribable. Meantime proper food was prepared, and then he really enjoyed life and started to tell everyone within hearing of the intense pleasure that life contained at least for him. For one solid month this heater was kept in operation day and night, at the end of which time the bird was really in good shape. At the time of purchase there were none of the orange breast-feathers visible, and these did not appear until the first summer, and I judge from this that he must have been a very young specimen. With this bird, as with all others, I tried rough treatment once he was in condition to find out if he really was a delicate bird. As an illustration of what I mean by rough treatment. In the summer-time I would mix up some 6 ounces of food, giving it to him when fresh, and giving him sour food until it was used, of course all this under close observation. At the time of purchase I was reliably informed that these birds could stand 70° F., and that 75° F. was better, yet I know for a fact that this bird stood at least 40° F. and perhaps even lower. He died after some four and a half years in my possession, which apparently is some record for this country, the others which arrived in the same shipment lasting not over two years. I personally think that under better conditions these birds should live at least eight to ten years, but mine never had an opportunity of a flight, remaining always in a box-pattern cage.

I realize that, in comparison with many fellow-members, my experience is extremely limited, and the varieties that I have kept are only nominal, but of all the tropical soft-bills that I have had I cannot believe that any are delicate or really difficult to keep or cater to. I have noticed also that while some well-known foreign varieties will eat berries and certain fruits, mine have never touched anything but banana, and I have never found any Shamas that would touch any form of fruit or green food. Green food I do not use as regularly as others, and never lettuce or cuttle-bone. Lettuce, even in minute

quantities, I consider far too laxative and without any real food value, while banana and orange or spinach have actual food value. I have just been reading a book by Mr. Finn and also one by Mr. Page, and I notice that they both, as do many others, advocate cuttle-bone. I have never yet discovered the reason for this with Canaries or any other birds. I believe some claim it stops egg-binding in hens, but I prefer to use for this purpose suet, or negger seed, and I have never had any egg-binding, though I have never done any real raising as my facilities have not been equal to this interesting part of our hobby. Cuttle-bone is, as near as I can find out, only lime, and if a bird is receiving proper food he will get this in his food. Of course birds like it because it is salty, but so far as being beneficial I cannot find out where this benefit comes from. It may seem presumptuous for me to differ from those of far greater experience than my own, but I know in this country that some of my friends who are in this hobby have losses far greater than mine. And yet for several years my birds had far less care and attention than I consider was required to keep birds in show condition, and people who have seen them comment on the fact that they are in show condition at all times.

At the present time I am looking forward with tremendous interest to the next twelve months. My present plant is located within 150 feet of the Atlantic Ocean on the East, and a river about 300 feet West. During the year that I have lived here we have had a mild winter, but several bad storms from the north-east and north-west, and I will be curious to see how my pets can stand the rigours of the damp climate which naturally follows proximity to so much water. I personally believe that with proper food it will have no effect, but it may be necessary for me to modify the diet of both the hard- and soft-bill birds which I may from time to time have.

I am always envious of our foreign members when I pick up the advertisements of some of your importers and see listed birds whose names I only know from books that seem fairly common in your market. Our importers here, because of lack of real interest in this fascinating hobby, bring in really only the more common varieties, and the beautiful rare birds which sell in your markets at such surprising figures are never seen even in public collections in this country. I do

hope that the time is not far distant when these conditions will improve for the better, as I believe that aviculture is just in its infancy here, and I look forward to seeing in the next few years a vast increase in the number of those interested in this fascinating hobby.

I hope that these rambling notes may contain some information that will be of interest.

THE TRUE PIGEONS OR COLUMBINÆ

By T. H. NEWMAN

This subfamily embraces the typical Pigeons and although none of its members can vie with the many-hued *Treronidæ* in brilliancy of colouration, all are fine handsome birds and some are among the most beautiful of the whole order, being more terrestrial in habits than the Fruit Pigeons. They have mostly longer legs and so seem better proportioned. The skin of the front toes is not expanded on the sides. They have twelve tail feathers. In the wild state the food consists of grain and seeds, beech-nuts, acorns, berries, buds, and small wild fruits, besides which a certain amount of animal food is taken in the form of smooth caterpillars, various grubs, and earthworms. In captivity a good mixture should be supplied of wheat and dari, with a lesser quantity of hemp. The larger species can have a little small maize, also white peas and "tick" beans as given to domestic Pigeons, while the smaller birds will eat white millet and canary seed; a little rice is liked by some species, crushed biscuit is eaten, a dog-biscuit ground very fine makes a change, chopped pea-nuts and green food should be given, and a lump of rock salt. The seeds need not be given separately, and if placed on a tray supported in the middle or suspended from the roof, mice will not be able to eat much. Many birds will scatter and waste much in trying to get at a particular kind of seed. I used to use the round pots of glazed ware, supplied by Spratts: they have a turned-in edge.

The large and unwieldy genus *Columba*, as given in the *British Museum Catalogue*, vol. xxi, and in Sharpe's *Hand-List*, is obviously composite in character and can conveniently be divided into sections

or subgenera. All are birds of considerable size and many are of great beauty. In habits they widely differ, some being as arboreal as Fruit Pigeons, others inhabit rocks, avoiding trees, and others again spend much time on the ground. The following species seem to have been kept in captivity.

The GREY or, as it would be better to call it, SILVER PIGEON (*Columba (Leucotænia) argentina*) is a very rare species. Two examples were presented by the Prince of Wales to the London Zoological Gardens in May, 1922, and, as far as I know, these are the only living specimens to have been imported; they seemed of sluggish disposition and were always perched quietly in a bush whenever I saw them. They strongly reminded one of soiled Nutmeg Pigeons (*Myristicivora bicolor*), as they have nearly the same distribution of colours, the entire bird being of a pale silvery-grey with quills and apical half of tail black. Habitat, Borneo and Sumatra. The better known name of *grisea* cannot be used for this bird on account of the prior *Columba grisea*, Bonn. = *Chamepeelia minuta*.

The SNOW PIGEON (*C. (Lithænas) leuconota*) is one of the most remarkably coloured birds in existence, looking like a domestic Pigeon of the "German Toy" class. It is a rock-loving species, breeding in the Himalayas in colonies, above 10,000 feet, but coming down to the valleys in winter. Its note is a curious hiccough-like noise, it also utters a *kuck-kuck-kuck* coo. Head slate-grey, wings greyish-brown crossed by three brown bands, neck and under-surface white, tail blackish-brown, crossed by a V-shaped white band. Habitat, Yarkand, Cashmere, through the Himalayas to Thibet. A coloured plate with an account of its habits and breeding appeared in the AVICULTURAL MAGAZINE, Vol. II (3), 1911.

The ROCK PIGEON (*C. (Lithænas) livia*). This is the well-known wild Pigeon of our rocky coasts and is, of course, the ancestor of all our domestic birds. Nearly a dozen races are known, from the dark *canariensis* from the Canary Islands to the pale, recently described form, *dakhlæ*, from the Lybian Desert. They only differ in the shade of the grey of the plumage and in the white or grey rump. Habitat, Europe, Asia, West Africa (with the Canary Islands), North Africa, and coasts of the Red Sea.

The STOCK PIGEON (*C. (Palumbæna) ænas*) is another of our familiar wild birds, whose grunting note can be heard wherever there are plenty of old trees. It also nests in rabbit-holes. General colour leaden-grey, with irregular black bars across the wings; tail with broad apical black band, throat and crop-region purple-vinous, back and sides of neck metallic-green. Habitat, Europe, Central Asia, an allied form being found in North India.

The WHITE-COLLARED PIGEON (*C. (Tæniænas) albitorques*). A striking bird of unique appearance; general colour bluish slate with irregular black bars across the wing, the feathers of the neck lanceolate and glossed with green, a white collar on the nape broadest at the back. Habitat, Abyssinia and Shoa.

The TRIANGULAR-SPOTTED PIGEON (*C. (Dialiptila) guinea*). This strikingly handsome species is another rock lover with habits very similar to those of our Rock Pigeon. I believe this would be a good bird to let fly at large, as it would probably behave very like a domestic Pigeon. It has a large bare red space round the eye and the feathers of the neck are stiff and bifid and stand out like a frill when the bird is uttering its bark-like note. Head, quills, and breast grey, also the rump; back and wings chestnut with triangular white spots. I reared a young bird of the Southern form, *phæonota*, some years ago; they differ from typical *guinea* in the darker shade of the grey parts. Habitat, throughout the greater part of the Ethiopian region, but not in the West African forest region.

The NAKED-EYED PIGEON (*C. (Crossophthalmus) gymnophthalmos*) is another species with bare skin round the eye, but as it is of a vinous-grey colour only a little darker in shade than the feathers of the head, it is not so conspicuous as in the last-named species. It has bred freely at the London Zoo. Head, neck, and breast rosy-vinous; wings pale brown, anterior wing-coverts broadly edged with white which forms a broad white band, so that the bird is known as "Ala blanca" in its native country. Habitat, Islands of Aruba, Curaçao, Bonaire, and Margarita off the north coast of Venezuela.

The PICAZURO PIGEON (*C. (Picazurus) picazuro*). This bird is rather like a dull-coloured Wood Pigeon with a vinous head. It does well in captivity and can frequently be seen at the Zoo. It feeds in

the maize fields and nests in the hot low-lying woodlands. Head and underparts rich vinous, hind neck grey with each feather with a narrow band of grey and black, wings sooty-brown with outer and greater coverts edged with white. Habitat, Central and South Brazil, Paraguay, Uruguay, and Argentina.

The SPOT-WINGED PIGEON (*C. (Notiænas) maculosa*). This is another well-known South American species which has done well and bred freely at the London Zoo. Its note resembles that of our Wood Pigeon, consisting of three notes—*cooo-ko-coo-coo*. Head and under surface deep grey with strong vinaceous tinge, mantle, scapulars, and upper wing-coverts sooty-brown with whitish triangular tips. Habitat, Peru to Argentina.

The OLIVE PIGEON (*C. (Stictænas) arquatrix*). The yellow orbital ring, bill, and feet of this splendid bird at once catch the eye; it is very largely a fruit-eater, being especially fond of the wild olives: hence its name. They breed in pairs, usually in wooded mountain ravines. Head dark vinous-purple, occiput and nape silvery-grey (a form from Belgian Congo has the nape pure white); back, scapulars, and lower breast deep purple-chestnut spotted with white at the tips of the feathers, rump and outer edge of wings grey. Habitat, Abyssinia through East Africa and Uganda to Angola and South Africa.

The WHITE-CROWNED PIGEON (*C. (Patagiænas) leucocephala*). This is the most sombre-coloured member of the whole genus, but is nevertheless a smart looking bird. It is of gregarious habits, considerable numbers nesting in the same tree. It feeds largely on berries. General plumage dark leaden-grey, paler below; crown pure white, duller in the female; nape and sides of neck glossy green, each feather edged with velvet-black which form black diagonal lines on the neck. I noticed that the young on leaving the nest show little trace of the white crown. Habitat, West Indies and southern North America.

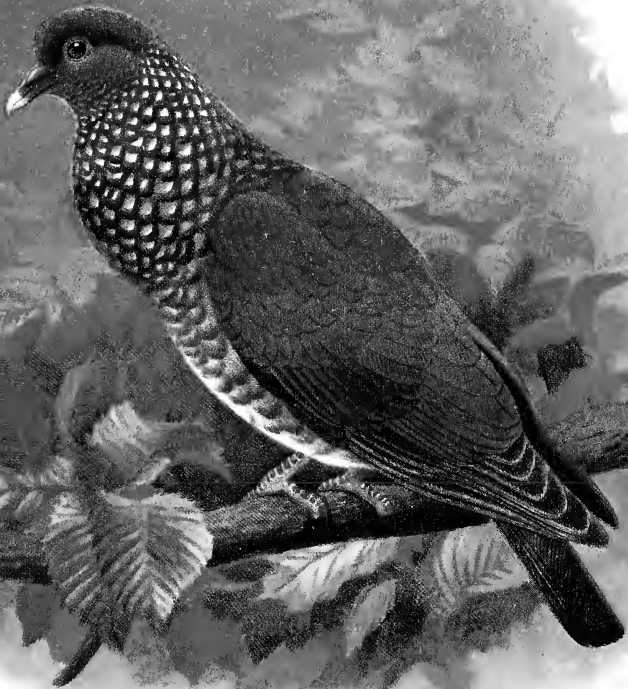
The PORTO RICO PIGEON (*C. (Patagiænas) squamosa*). This is a near ally to the last-mentioned species. It is said to be of very arboreal habits and to feed on berries. General colour dark plumbeous; head, neck, and crop rich vinous, nape and a cape extending upon the sides of the neck metallic-violet, each feather bordered with velvety maroon. Habitat, many of the West Indian Islands but not Jamaica or the Bahamas.

The SCALLOP-NECKED PIGEON (*C. (Lepidænas) speciosa*). A glance at the coloured plate accompanying this article will show what a very fine species this is. Unfortunately, only few examples seem to have been imported, though it is said to be abundant in its native forests. Head and wings maroon with purple tinge, feathers round neck with white spots and regularly margined with metallic-green and amethystine reflections producing a scaly appearance. Habitat, East Mexico, through Central America to Colombia, Ecuador, Peru, Guiana, and Brazil.

The PLAIN PIGEON (*C. (Chlorænas) inornata*). Though very abundant in Haiti and Jamaica it has rarely been imported alive. It forms one of a group of five closely allied species of which the Rufous Pigeon is the best known in captivity. Head, neck, and underparts vinous-purple; mantle and wings brown-grey, median wing-coverts tinged with chestnut; anterior upper and greater wing-coverts conspicuously edged with white, bill black. Habitat, typically Cuba and Haiti; other races from Jamaica, Porto Rico, and the Isle of Pines.

The RED-BILLED PIGEON (*C. (Chlorænas) flavirostris*) has also been imported. It inhabits forest districts, always perching on the highest trees. In the mornings it resorts to the sand-bars in the river for drinking and bathing. It feeds on acorns when in season. In summer it migrates north to within the borders of the United States, where it breeds abundantly: only one egg is laid, but the birds are said to breed several times in a season. General appearance like *inornata*, but the grey wing-coverts are only narrowly edged with whitish and the bill is rosy red at the base, whitish at the tip, a red ring round the eye. Habitat, North Mexico, Rio Grande Valley in Texas to Honduras; other races from Nicaragua and Costa Rica and from Tres Marias Islands.

The RUFOUS PIGEON (*C. (Chlorænas) rufina*). The darkest and most richly coloured member of this group, distinguished by the absence of lighter margins to the wing-coverts. It has a superficial resemblance to the Madagascar Turtle Dove, *picturata*. It was first bred in this country by the late Miss Alderson, of Worksop, only one egg being laid at a sitting. Forehead, neck, breast, back, scapulars,



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Scallop-necked Pigeon.
Columba (Lepidœnas) speciosa.

and median upper wing-coverts chestnut-purple tinged with amethystine; nape bronze-green, cheeks, lower back, upper and lower tail-coverts grey, tail brown-grey. Habitat, about five races distinguished; typically from French Guiana; range of species from Brazil north through Guiana, Venezuela, Colombia, Panama to South-East Mexico.

The RING-TAILED PIGEON (*C. (Chlorænas) caribæa*). This fine bird is very arboreal and feeds almost entirely on fruits and berries. Though difficult to obtain it has been exhibited at the London Zoological Gardens on several occasions. Upper surface grey, the tail crossed in the middle by a black band, hind neck metallic-green shot with purple, head, sides of neck, and under surface vinous, fading to greyish-white on the under tail-coverts; bill black, iris beautiful deep vermilion. Habitat, Jamaica and perhaps Porto Rico.

The BAND-TAILED PIGEON (*C. (Chlorænas) fasciata*) is a very attractive species, well known in Canada and the Western States, where it feeds in flocks on grain and peas. It has seldom been imported. I once had two young birds which did not show the white neck band of the adult. They were deposited at the Zoo. Head, sides of neck, throat and breast purplish-violet fading to white on the under tail-coverts; nape golden-green, separated from the purplish head by a conspicuous narrow white half-collar; back, wings, and tail brownish-grey, the latter crossed by a narrow black band in the middle; bill black at the tip with the base and also the feet yellow. Habitat, Western North America from Canada to Nicaragua in Central America; a form from Lower California lacks the black tail-band.

The WHITE-NAPED PIGEON (*C. (Chlorænas) albilinea*) is nearly related to the Band-tail, from which it chiefly differs in being much darker. It feeds on seeds and fruits, perching in company to rest in dry trees during the midday heat. Crown of head and under-surface purplish-vinous, throat and under tail-coverts lead-grey, nape dark metallic golden green with white half-collar above, back and wings slate-colour with olive-green gloss, tail grey with a blackish band across the middle; bill and feet yellow. Habitat, the north-eastern part of South America. A race with paler grey underparts inhabits Costa Rica to Panama.

The ARAUCANIAN OR CHILIAN PIGEON (*C. (Chlorænas) araucana*). This very handsome bird is the richest coloured member of the little group of Pigeons with white neck-collars. It is very abundant in Chile, appearing in flocks during the cold season. The nest resembles that of our Wood Pigeon. The cooing is said to be a deep booming sound. It is a pity that it seems to have been so rarely imported. Head, throat, back, scapulars, breast, and abdomen chestnut-vinous with amethystine tinge on the breast; scale-like feathers of hind neck metallic bronze-green, a whitish band on the nape, wing-coverts greyish-brown, changing into lighter grey on the outer and greater ones; quills brown-black with narrow whitish edges, lower back and tail grey with a subterminal black band, bill black, feet rose red. Habitat, Chile.

The CANARIAN PIGEON (*C. (Trocaza) junoniae*). The Canary Islands and Madeira are inhabited by three closely allied Wood Pigeons very like small editions of our common species, but lacking the white patches on neck and wing, and only one egg is laid at a sitting. About forty years ago Mr. Meade-Waldo found the present bird fairly abundant in Gomera on the steep slopes of the Cordillera, covered with thick heath and laurel-scrub. He noted the peculiar soft flopping flight and the conspicuous light-tipped tails making them resemble gigantic Turtle Doves when flying. They spent much time on the ground. Mr. St. Quintin reared two or three in 1898. General colour grey, the head and neck glossed with green, the outer tail feathers paler at the tips, breast and abdomen vinous-chestnut. Habitat, Palma and Gomera (Canary Islands). The name *laurivora* is merely a substitute for *C. (T.) trocaz*. La Palma and Gomera were formerly called Junonia Major and Minor.

BOLLE'S PIGEON (*C. (Trocaza) bollii*). Formerly very abundant in the laurel forests of the Canary Islands, but since the laurels have been cut down both it and the Canarian Pigeon have become very scarce, so that if it has not already taken place the final disappearance of these two fine birds seems imminent. Both these species inhabit Gomera and Palma, but Bolle's Pigeon prefers the higher mountain country. It bred in the London Zoo in 1888. General colour slate-blue, hind, neck, and upper mantle glossed with green and purple; a patch on sides of neck glossed with coppery-chestnut, breast vinous-

chestnut changing to grey on the abdomen, tail slaty-black crossed by a broad sub-terminal dark grey band. Habitat, Teneriffe, Gomera and Palma (Canary Islands).

The MADEIRAN PIGEON (*C. (Trocaza) trocaz*). Frequents the high laurel forests, feeding on the fruit of the bay and till trees, for which they search among the dead leaves on the ground. Ogilvie-Grant found it still fairly common in the north of the Island in 1890. Slate-blue, rather paler on head, fore-neck, lower back, rump, and under-surface; hind neck glossed with green, feathers on sides of neck scale-like and tipped with silvery-grey, breast vinous-chestnut, tail leaden-grey, crossed beyond the middle by a broad lighter grey band. Habitat, Madeira.

The WOOD PIGEON (*C. palumbus*). This all too well-known bird is the type of the genus *Columba*, and is thus pre-eminently the typical Pigeon. When reared from the nest it will become extraordinarily tame. A cock bird I once had would always come and coo to one when spoken to, bowing and raising the tail. It was interesting to watch the iris contract with each bow. He would answer even when spoken to at night. I tried to mate him without success to a hen domestic Pigeon. Many hens seemed quite willing, but he was very rough with them. Of course, this cross has been obtained. A description is needless. Habitat, Europe and West Asia; allied races from North-West Africa, Madeira, and the Azores, while in Turkestan and North-West India a form occurs with cream-coloured neck patches.

None of the four members of the section *Alsocomus* seem to have been imported alive. Three of these are grey birds with handsomely spotted neck bands, while the fourth (*C. (A.) puniceus*) is chestnut with a pale grey crown. They inhabit India, Ceylon, and Indo-China.

We now come to the Metallic Pigeons comprising the section *Janthænas*. They are birds mostly slaty-grey in colour but with the whole of the plumage, except the quills and tail, glossed with bright metallic colours which vary according to the angle of light. An almost black looking bird by a sudden turn will show glittering green or from another view appear bright rosy purple or fiery orange, making them among the most beautiful of birds and only rivalled or surpassed by the Sun- and Humming-birds. About a dozen species are known,

though there is some difference of opinion about some whether they should be given full specific rank. It is much to be regretted that only a small number of a very few of these splendid birds have ever been brought over. In habits and appearance they closely resemble the Fruit Pigeons of the genus *Muscadivora*, but have only twelve rectrices like other typical Pigeons.

The METALLIC PIGEON (*C. (Janthœnas) metallica*) is one of the least beautiful of this subgenus, but is nevertheless a very handsome Pigeon. I have not been able to find any account of its habits. General plumage slate-black, upper part of head, neck, and crop region metallic purple-violet; throat and cheeks slate-grey with slight purple edges to the feathers of the latter; rest of upper parts with metallic golden-green edges. Habitat, Timor.

The WHITE-THROATED PIGEON (*C. (Janthœnas) halmaheira*) is perhaps the most beautiful of all the Pigeons and a most desirable aviary bird in every way, gentle in disposition and very hardy, preferring to sit in the open during rain and nesting even in the winter. I obtained six birds in 1908 and reared several young ones, only one egg being laid at a sitting. Every egg hatched produced a healthy youngster, being fully reared in every case. Maize was their chief food. An account of the nesting will be found in the AVICULTURAL MAGAZINE, Vol. I (3), 1910. Crown of head and upper surface blackish-slate, glossed with brilliant metallic-green or rosy-purple according to light; cheeks and throat white, under-surface pale chestnut glossed with purple changing to green, quills and tail slate-black, orbits and base of bill red, terminal half of latter yellowish-white. Habitat, typically Moluccas; other races from Duke of York Island and New Guinea. It is to this last form, known as *C. (J.) h. rawlinsoni*, to which my birds belonged. The name *albigularis* cannot be used for this species on account of a prior usage.

The FIJIAN WHITE-THROATED PIGEON (*C. (Janthœnas) vitiensis*). Dr. P. H. Bahr, writing in *The Ibis* for 1912, says of this Pigeon: "It is still extremely common, very tame and confiding. It is partially migratory and appears in great numbers round Suva in April and May." It lives well in captivity, becoming very tame and docile. It has a loud "coo" not unlike that of a Stock Pigeon. Very like the last described

species, but having the forehead distinctly grey; the underparts are darker, being rich vinous passing into grey on the under tail-coverts. Habitat, Fiji Islands.

When so many of the Australian birds have been freely imported, it is strange that the beautiful AUSTRALIAN WHITE-HEADED PIGEON (*C. (Leucomelæna) norfolciensis*) has never been seen alive here. Its white head, neck, breast, and abdomen, and slate-black upper parts glossed with green or purple and red and yellow bill make it most attractive.

The BROWN, LANCEOLATE-COLLARED COMORO PIGEON (*C. (Amaurænas) pollenii*), with yellowish bill and feet, is another interesting species yet to be imported.

The VINACEOUS PIGEON (*C. (Ænænas) plumbea*). The members of this, the last group of the genus *Columba*, are all American, ranging from the Southern States of North America to as far south as Paraguay in South America. They are all nearly uniform dull brown, with more or less metallic reflections. They are forest birds. Numerous races belonging to some half-dozen species have been described, but only one, the above-named, seems to have been brought over alive. It is said to be strictly a Wood Pigeon and rarely leaves the shelter of the woods and dense scrub. Its food consists of fruit. Head, neck, and under-surface purplish-vinous, upper surface dark brown glossed with olive, the feathers of the lower hind neck and mantle often have two rosy spots on them. Habitat, South Brazil and Paraguay.

MAYER'S PIGEON (*Nesænas mayeri*). There seems to be something fatal to Pigeons in the Island of Mauritius, for this lovely pink-breasted bird seems now to have followed its more famous fellow islanders the Dodo and the curious Hackled Pigeon (*Alectrænas nitidissima*) to extinction. This was brought about by the destruction of the forests and the introduction of an Indian monkey, which destroyed the nests, eggs, and young birds. Two birds were presented to the London Zoo in 1906, and four more were deposited in June, 1907, quite possibly the last of their race. Head, neck, mantle, and under surface pale pink, paler on the head; upper surface and wings brown, tail cinnamon, bill rosy pink at the base, nearly white at the tip; a ring round the eye and feet red. Habitat, Mauritius.

THE GABOON BRONZE-NAPED PIGEON (*Turturæna iriditorques*). Very little seems to have been recorded about the habits of the three or four species of African Pigeons of this genus: they seem to be forest birds feeding on fruits and berries and on certain insects. A single bird of this species was presented to the Zoological Society of London by Mr. T. R. Saunderson in June, 1928. Major H. J. Kelsell found this fine Pigeon fairly common in the hill forests of Sierra Leone, but owing to its living in the tops of tall trees, it is extremely difficult to obtain specimens. Its call is unmistakable, being a very deep, sonorous "coo-oo, coo-oo, coo-oo", the second and third being in a lower key. Male, entire head and upper neck lead-grey; hind-part of head and neck glossed with green, below which is a collar of coppery feathers with amethystine reflections; rest of upper parts slate-grey, feathers of mantle edged with green; under-surface vinous more chestnut on under tail-coverts. The female has little grey on the head which is vinous like the upper breast, rest of under parts brown-grey. Habitat, West Africa from Sierra Leone to Angola, east to the Ituri district of the Belgian Congo.

THE ST. THOMAS BRONZE-NAPED OR MALHERBE'S PIGEON (*T. malherbii*). A hen bird of this species was exhibited in the London Gardens in 1909. Upper parts and tail slate-black with metallic-green lustre, forehead, throat, and under parts lead-grey; neck metallic-green with beautiful amethyst reflections, bill grey at base, yellowish at tip; feet pink, iris crimson. Habitat, Prince Island and St. Thomas Island in the Gulf of Guinea.

THE LONG-TAILED PIGEONS or CUCKOO-DOVES (*Macropygia*) form a well-marked genus, distinguished by their long tails, brown or chestnut plumage, in many instances remarkably barred. They are of a tame nature inhabiting open glades in dense forest. They spend much time on the ground, only a few individuals being found together. They feed on seeds and berries. Range, Oriental and Australian regions. Some forty forms have been described, but these are probably referable to about a dozen species, and only a very few have been imported.

THE BAR-TAILED CUCKOO-DOVE (*Macropygia unchall*). A few examples of the typical race seem to have been exhibited at the London

Zoo, and Madame Lécallier bred it in 1926 and 1927. Little has been recorded of its habits in a wild state, but Robinson in his just published *The Birds of the Malay Peninsula*, vol. ii, writes: "Decidedly rare in Malaya, being found only on the higher parts . . . on Cameron's Highlands, at about 4,000 feet. It is met with in parties of three or four, feeding on the ground amid tangled vegetation, usually in damp places. When alarmed it takes to flight with a noisy clapping of the wings, but soon settles again. The note is a very deep 'coo', ending in a curious kind of gurgle." It rarely lays more than one egg at a sitting. Male, top and sides of head buffy-grey strongly shot with greenish and amethystine reflections as are also the feathers on the nape, upper surface blackish irregularly barred with dark chestnut rufous, tail barred with black and dull rufous, the three outer pairs tipped with greyish; below, chin and throat vinaceous buff; chest and breast vinaceous barred with black and shot with amethystine reflections, belly pale buff changing to pale cinnamon on the under tail-coverts. The female has the head and under-surface thickly barred with brownish-black. Habitat, typically Java, Sumatra, Malay Peninsula, and probably Tenasserim. This form used to be called *leptogrammica*, which is a later name for the Javan bird. The better known, larger, and more finely barred race from India, *M. u. tusalia*, does not seem to have been brought over. But the dark race from Hainan and Indo-China, *M. u. minor*, was bred by Mr. Ezra in 1927 from birds brought over by M. Delacour. Only one egg was laid at a time in captivity, but nests containing two eggs were found in Annam, see AVICULTURAL MAGAZINE for January, 1928, under Swinhoe's Pheasant-tailed Pigeon (*M. swinhoei*).

EMILIAN CUCKOO DOVE (*M. emiliana*). An example of this Pigeon was purchased by the London Zoological Society in 1866. According to Whitehead this species nests in open localities in dead bracken only a foot or two above the ground, its plumage assimilating perfectly with the dead fern. Back and wings deep chestnut, faintly tinged with purplish; tail conspicuously rufouscent, a broad black belt across the base of the three outer feathers; head, neck, and under-surface cinnamon-rufous, hind neck and mantle with lilacine lustre. The female has the mantle crossed by dusky-bordered cinnamon bars,

breast with broader dusky margins to the feathers. Habitat, Java, Lombock, and North Borneo.

THE PHEASANT-TAILED CUCKOO DOVE (*M. phasianella*). Little seems to have been recorded of the habits of this Pigeon since Gould recorded that this fine bird shows itself to great advantage when it rises from the ground to the trees, spreading out its broad tail at the moment of alighting. It spends much time on the ground searching for fallen seeds and berries. Only one egg is laid as a rule. General colour chestnut-brown, hind neck glossed with metallic lilac shot with green, a black band across the three outer pairs of tail feathers. Female smaller and duller, lower hind neck and upper back with brown and rufous bars. Habitat, Australia from Cape York to Victoria and South Australia; other sub-species ranging west to Sumatra and north to the Philippines.

DOREY CUCKOO DOVE (*M. amboinensis doreya*). This is one of the numerous races of *M. amboinensis*, which ranges from the Moluccas, New Guinea, and Islands to New Ireland. Ogilvie-Grant, writing of another of the forms in the Jubilee Supplement to *The Ibis*, 1915, says: "It has a graceful flight and a sweet call of three or four coos. It appears to spend much of its time feeding on the ground, but when alarmed flies up into the trees." The Dorey Pigeon is above chestnut-brown, nape and upper mantle bright metallic-green shot with purple, tail cinnamon with subterminal blackish band on three outer feathers, breast rich vinaceous shot with purple, each feather with two blackish bars; under tail-coverts chestnut. The female has the crown brighter chestnut and the upper surface is brown with the feathers more distinctly edged with chestnut. Habitat, New Guinea and North-West Islands.

There are three other genera in this sub-family, all of great interest. It is to be hoped that we shall see them alive some day. *Turacœna*, with two slaty black species, one with a white forehead and cheeks. *Reinwardtœna* also containing two species, both fine, long-tailed birds with pale grey heads, necks, and underparts, one with chestnut wings and tail, the other with these parts black; and lastly *Coryphœnas*, with one species from the Solomon Islands—a long-tailed slaty-grey bird with a greyish-brown crest and enormous thick red bill.

The next sub-family contained only a single species. The PASSENGER PIGEON (*Ectopistes canadensis*) has been extinct since 1914, when the last-known hen bird died in the Cincinnati Zoological Park. The rapid destruction of this, at one time most abundant, species, is one of the great tragedies of avian life in our own time, which is all the more to be regretted as this very handsome Pigeon, with its long pointed tail, thrived very well and bred freely in captivity, so that if only a good stock had been preserved, it would have been kept going for any length of time after the wild birds had been exterminated. Male, head, back, wings, and tail bluish-grey; median wing-coverts with black velvety spots, outer tail feathers with a patch of black and cinnamon at base of inner web, tips nearly white, throat and breast reddish-cinnamon, fading to white on the under tail-coverts. Female browner and wanting the cinnamon on the breast. Habitat, east and central North America.

(*To be continued.*)

CORRESPONDENCE

WATERFOWL AT WOBURN

SIR,—Having read Mr. Laidlay's letter *re* Carolina and Mandarin Ducks, I think it may be of interest to record that our experience of both species corresponds exactly with that reported by the Editor.

We have kept full-winged Carolina and Mandarin Ducks for a great number of years. The former bred and did well with us for several years and then died out. The Mandarins did not do well until given full liberty, but since then they have thriven and a considerable number have remained with us. I am not prepared to say that they do not stray, as I have heard that many come into the hands of the local taxidermists, but we get flocks of upwards of fifty in our garden at times. Naturally the numbers vary according to the breeding season. In the last few years we have tried to revive the Carolinas. The old birds thrive and young are hatched, but though this has been a favourable season for young Ducks, we have many families of young Mandarins but I am not aware of a single young Carolina surviving.

They nest in the old trees in the Park and have access to water everywhere. It has been a very dry season, perhaps somewhat cold, but not cold enough, one would have thought, to affect what should be a hardy bird.

We have nine young Emperor Geese and six Red-breasted Geese now getting their feathers.

In the case of the Red-breasted, we had the same birds some fourteen to fifteen years before they bred at all, though they occasionally paired ; now they lay annually.

M. BEDFORD.

MISBEHAVIOUR OF FISCHER'S LOVEBIRDS

SIR,—Perhaps my unfortunate experience with Fischer's Lovebirds might serve as a warning to other members of the Avicultural Society who believe these birds to be of an amiable disposition.

I have had two cocks in an aviary 8 feet by 12 feet, with three pairs of Budgerigars and a few other Lovebirds and Weavers for about three months, and until last week their conduct was exemplary.

Last Thursday, however, a nest of Blue Budgerigars was just hatching and, evidently attracted by the noise made by the young, the Fischer's were trying to get into the nest-box. They flew away as I approached, and the cock Budgerigar then left the nest—with the whole of the upper mandible neatly cut off. The bird was, of course, quite unable to feed, and I was compelled to destroy it.

I removed the Fischer's at once, and having no other accommodation available, I put them with my Stanley Parrakeets, where I thought they *would* be safe.

The following evening, when the hen Stanley left the nest (she had been sitting ten days) she looked into the box in which the Fischer's were roosting and immediately gave a terrible squawk, and I rushed down to the aviary only to find her in exactly the same condition as the Budgerigar.

I was very upset at this, and amazed too, as a Stanley is four or five times as big as a Fischer's Lovebird, and I had little hope of saving her.

However, I offered soaked bread and chopped pea-nuts and to-day she is going on splendidly and shows every sign of nesting again shortly. Her original five eggs were spoiled the first night.

The cock bird has fed her all the time, and this is probably the reason she has survived. If the upper mandible will only grow again (I don't know whether it will) before they finish nesting, I have no doubt she will make a complete recovery.

Neither the Stanley nor the Budgerigar seemed very much distressed by its terrible injury, but a bird thus injured is *not* pleasant to look at.

C. BEST.

REVERSION OF MUTANTS

SIR,—I should like to draw attention to the fact that the male Melanistic Mutant Pheasant now in the Zoo, which assumed the typical plumage of the variety when he came into colour in his birth year, 1926, is now very far from typical; in fact, he looks like a half bred *versicolor*, having assumed much of the reddish hue of the ordinary Pheasant when he moulted last year, while there was an indication of this the year before, the red showing out like the glow in the Bronze Turkey's plumage. I should also like to mention that our member, Mr. G. Palmer, got this year a young Goldfinch Mule which was mostly black in colour (though the wings were normal) and that this bird, when I last visited his establishment, was rapidly assuming the colour of the ordinary "dark mule", and will no doubt be indistinguishable from one when this appears.

I have several times read of black Mules in *Cage Birds*, or heard of them, but this is the first I have seen; it would be interesting to know if they often revert in this way. A fancier I met at Mr. Palmer's told me that he once bred a very black Mule and three white ones in one nest from a Siberian Goldfinch mated to a pale buff hen Canary.

F. FINN.

REVIEW

THE BIRDS OF SOUTH-EAST DEVON ¹

In recent years it has become the custom of students of bird-life to specialize in the avifauna of some particular district, and a good many books have appeared recently on the birds of the different counties. The latest of such books deals only with part of a county, the beautiful country of Devon, lying to the east of the Exe. This is a rich land of birds, the country being varied and including such estuaries as those of Seaton and Dawlish, commons such as Honiton and Woodbury, rivers, cultivated land, marshes, and well-wooded valleys.

Interesting accounts of the various species are given and some of these are very interesting. The Nightingale is a rare bird so far west as Devon, but it occasionally appears, and when it does is warmly welcomed. One appeared near Exmouth in 1927, and was thought so much of that a well-patronized charabanc was run to the spot every evening for two or three weeks.

The Goldfinch, we are told, is steadily increasing in numbers, and certainly we have seen more of these birds in Devonshire than elsewhere.

The book is illustrated with some excellent photographic plates.

AVICULTURAL NOTES

By THE EDITOR

The letter from the Duchess of Bedford, printed on page 193, confirms me in my belief that the Mandarin Duck might, with a little trouble, be established as a breeding species and a most ornamental object in the parks and open spaces of London. As mentioned in the June number, it has been so established in Berlin and now we are told that at Woburn, although a few stray, flocks of upwards of fifty

¹ *The Birds of South-East Devon*, by Lewis R. W. Lloyd. H. F. & G. Witherby. Price 10s. 6d. net.



[D. Seth-Smith.]

MANDARIN DUCKS.
(*Es. galericulata*.)

appear in the garden at times, showing that this most ornamental of the Ducks has become thoroughly established there.

It would seem that the method to adopt in London would be to place on the ponds, such as that in St. James' Park, a number of birds unpinioned but wing-clipped at a time some months previous to the moulting season, so that they would become thoroughly accustomed to their surroundings before they moulted and regained their powers of flight. When imported, Mandarin Ducks are usually merely wing-clipped, but unfortunately a number that happen to be in the market at the present time are all pinioned, so are useless for our purpose, but it is to be hoped that others will arrive during the next few months and I am promised a very generous contribution towards the cost of the birds and am assured of the help and support of those in authority in the Royal Parks. So we may hope to eventually carry out this experiment.

The Barbary or Ringed Turtle-dove appears to have been naturalized in Los Angeles, California, according to a letter in the *Condor*, the writer of which noticed at least twenty pairs feeding from persons' hands and breeding in the palm-trees in Pershing Square.

From observations of the Ceylon Jungle-fowl (*Gallus lafayetti*) in the Zoological Gardens, it is evident that the male bird does not have an eclipse plumage such as is assumed by *G. sonnerati* and *G. gallus* when the latter is really pure. It is also noticeable that *G. lafayetti* does not reach maturity until, apparently, its second year, young cocks bred early in 1928 being still no further advanced than young Red Jungle-fowls would be at six months old.

Our member, Mr. J. N. T. Otaki, recently secured from a dealer in London some very beautiful Red Cardinals, which proved to be Scarlet Cardinals, *Cardinalis phoeniceus*. The species occurs in Venezuela and was exhibited in the Zoological Gardens in 1908. The male has the head,

crest, and whole of the underparts scarlet ; the wings, rump, and tail vermilion red and a black patch on the chin. The female has the mantle, back, and rump olive-brown, the outer edge of the quills being tinged with red.

The Steamer Duck is a very rare species in captivity, and it is not easy to see why it has not been imported more often than it has, for it seems to be perfectly hardy and easily kept, and with suitable accommodation there should be a prospect of its breeding. Like the general run of Southern Ducks, it has no eclipse plumage, and like other Ducks it moults all its flight-feathers simultaneously.

Those who keep Lovebirds with other species should read carefully the letter on page 194 from Mr. C. Best. All the Lovebirds (*Agapornis*) are untrustworthy with others less powerful than themselves, and although no harm may result for a time, sooner or later a tragedy is most likely to occur.

THE SOCIETY'S MEDAL

It is proposed to grant medals to the following members for breeding the birds mentioned below for the first time in the British Isles. If any member or reader should know of any previous instance they are requested to communicate without delay with the Hon. Secretary.

Mr. J. Spedan Lewis, for breeding the Virginian Eagle Owl (1928, page 195).

Mr. A. Ezra, for breeding the Pied Grallina (1928, page 233).

Mr. W. Shore-Baily, for breeding the Indian Coucal (1928, page 279).

Mr. A. Ezra, for breeding the White-capped Starling (1929, page 175).

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Proposed by Victor G. Loly.

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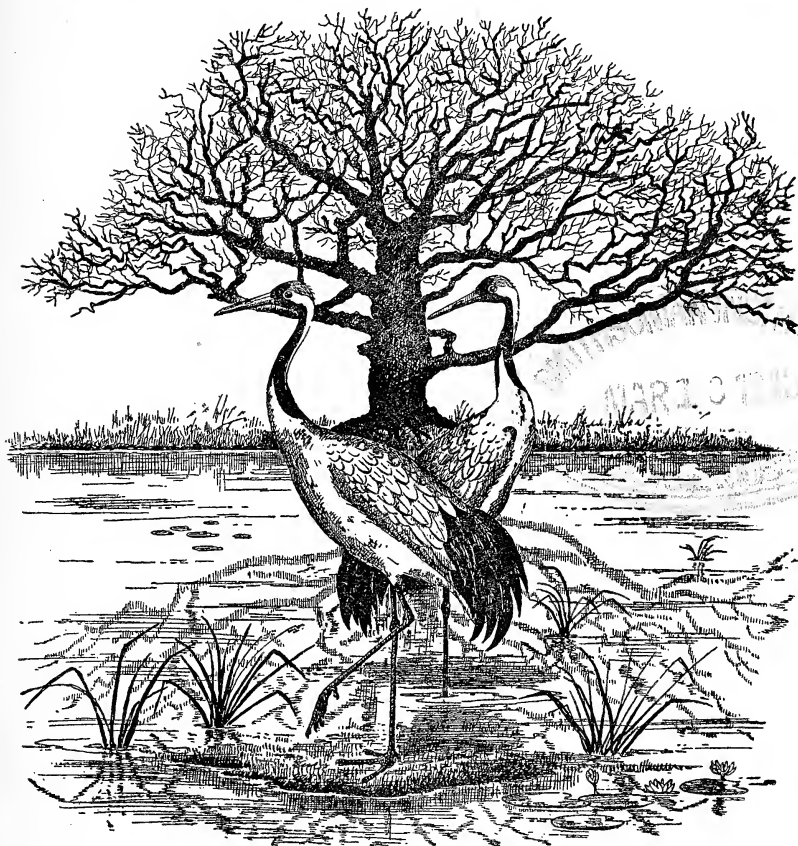
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THE Avicultural Magazine



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THE AVICULTURAL SOCIETY.

FOUNDED 1894

NOTICE TO MEMBERS

The Subscription to the Avicultural Society is £1 per annum, due on the 1st of January in each year, and is payable in advance. The entrance fee is 10/0. The *Avicultural Magazine* is sent free to members monthly. Members joining at any time during the year are entitled to the back numbers for the current year, on the payment of entrance fee and subscription.

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Rule 1.—A short account of the illness should accompany the specimen. All birds to be sent as fresh as possible to Mr. C. H. HICKS, The Prosectorium, The Zoological Society of London, Regent's Park, London, N.W. 8.

Rule 2.—A stamped addressed envelope must be enclosed with the bird.

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Orange and White-breasted Toucan.
(Ramphastos vitellinus).

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF
THE AVICULTURAL SOCIETY
FOR THE STUDY OF
FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

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THE ORANGE-AND-WHITE-BREASTED TOUCAN (*RHAMPHASTOS VITELLINUS*)

By CAPT. E. F. E. HAMMOND

The Toucan depicted in the accompanying plate, *Rhamphastos vitellinus*, is variously described as the Orange-and-white-breasted, Sulphur-and-white-breasted, and Orange-breasted Toucan. I have chosen the first for the heading of this short account of the bird, as it is the most descriptive.

This Toucan is more closely allied to the Ariel than to any other of the *Rhamphastos* family, although his brilliant blue naked orbital patch gives him such a different appearance. He shares with the Ariel and the Green-billed the distinction of having the upper tail-coverts scarlet; all other members of the *Rhamphastos* family having the tail-coverts white (as the Toco, Sulphur-breasted and Tocard), or yellow or orange (as the Red-billed, Cuviers, etc.).

The specimen which I have was imported in June, 1928, by Mr. Chapman, together with a number of Red-billed, Ariel, and Green-billed and, although at first he appeared very delicate, he seems quite as hardy as any other Toucan now he has moulted out. The British Museum gives the habitat as Trinidad, Venezuela, Guiana, and Lower Amazonia, and it is the only Toucan which has its habitat in Trinidad. There are, I believe, no longer any Toucans in Trinidad, and have not

been for a number of years. According to Butler, the London Zoological Society purchased a specimen in 1872, and that is the only instance he gives of one reaching Europe alive.

[A second specimen was received by the Zoological Society on 4th September, 1888.—ED.]

THE TRUE PIGEONS OR COLUMBINÆ

By T. H. NEWMAN

(Continued from page 193)

The family *Turturidæ*, formerly known as *Peristeridæ*, appears to contain at least two distinct groups, the Turtle Doves and the Ground Doves. The former are lighter built birds, spending much time perching, but feeding on the ground, while the latter are stouter ground-feeding and ground-living birds with very stout feet and shorter wings. In the wild state they feed on seeds of weeds, sometimes grain, green shoots, wild peas, berries, small worms, and smooth caterpillars. In captivity they do well upon a diet of white millet, dari, a little hemp, and occasionally small earthworms.

Sub-family *Zenaidinæ*

The CAROLINA DOVE (*Zenaidura macroura carolinensis*). A very common bird in the Eastern States of North America, from Canada to the Southern States, in the summer, it breeds from April to June, two nests at least being reared. It arrives from the south in March, and feeds largely on beech-nuts, seeds, and waste grain, and a considerable amount of insect food. In America it is known as the MOURNING DOVE from its long drawn mournful note of "*Oh-woe-woe-woe*". Above greyish-brown with black spots on the wing-coverts and scapulars; head brownish-red; a black spot behind the eye and another below the ear-coverts; sides of neck metallic purplish-red; under surface pale reddish-brown with the breast washed with purple. The tail is rather long and graduated, of fourteen feathers, black at the base, outer ones tipped with white, the others with whitish tips, becoming bluer towards the middle feathers, which are brown. The female is duller, greyish-brown below. Habitat, east North America from South Canada to the Gulf States; also the Bahamas. It is only seldom

imported and it is difficult to know exactly to which race the birds should be assigned. Typical *macroura* comes from the Greater Antilles, other races from western North America, Clarion Island, and Tres Marias Islands, Western Mexico.

GRAYSON'S or SOCORRO MOURNING DOVE (*Z. graysoni*). Colonel Grayson says of this Dove: "Of all the birds I met with on the Island, these seemed to be the most lovely; not a flock or even a pair were ever seen together. They are remarkably tame, perhaps more so than any bird of this order. One was captured by hand as it came into our camp, and perched upon the rude table on which I was at work; its melancholy look appeared to be in keeping with the solitude of, and its sombre plumage corresponding with the grey brush and brown volcanic rock composing its wild home." Mr. H. Bright received four examples in 1925 and reared two young ones the following year; an account appeared in the AVICULTURAL MAGAZINE for August, 1926. Mr. Gifford, of California, and Mme Lecallier have also bred it. Very similar to the last described but with the under parts including under tail-coverts deep rufous cinnamon. Habitat, Socorro Island, Western Mexico.

The MARTINIQUE DOVE (*Zenaida aurita*). Colonel Feilden gives some notes of this species in Barbados, in *The Ibis*, 1889. He says: "This beautiful species is not uncommon in places where it obtains protection, being numerous in the grounds of Codrington College, where it nests on the fronds of the lofty palmistes. . . This species nests in cliffs as well as on trees." It has frequently been imported, Miss Alderson bred it freely and I had a pair which nested. Upper parts brown; inner upper wing-coverts and some of the scapulars with black spots edged with white, a conspicuous white band at the tip of the secondaries; head vinous rufous; two steel-blue spots on sides of head; two patches on hind neck metallic-amethyst; breast rufous-cinnamon, fading in the lower parts and under tail-coverts to pure white; outer tail-feathers black at base with white tips. The female is similar but not so bright. The young lack the spots on the head and the metallic colour on the neck. Habitat, Lesser Antilles and St. Croix.

The ZENAIIDA DOVE (*Z. zenaida*). Of rather solitary habits, never

being met with in flocks, it spends much time on the ground and may be seen on the dusty roads in Jamaica. It feeds on seeds and berries. The nest is sometimes placed not more than a yard from the ground, and in the Bahamas nests have been found placed in holes in the rocks. General appearance very like the Martinique Dove, having the same white band on the secondaries, but darker; the black spots on the scapular, and wing-coverts have no white edges, and the breast, abdomen, and under tail-coverts are deep vinous. Habitat, Florida Keys, Bahamas, Cuba, Isle of Pines, Little Cayman, Cayman Brac, Jamaica, and Haiti. Other races from the easternmost Greater Antilles and Sombrero, St. Eustatius and Antigua, Lesser Antilles; also from the coast of Yucatan. The names *amabilis* and *meridionalis* have been given to this bird, but *zenaida* seems to be the correct one.

The AURICULATED or BRONZE-NECKED DOVE (*Z. auriculata*). Hudson in his *Birds of La Plata* says: "This is the commonest species of the Pigeon tribe in the Argentine country. In autumn they often congregate in very large flocks and are sometimes observed migrating, flock succeeding flock all travelling in a northerly direction; but these autumnal migrations are irregular, and apparently depend on the supply of food; incredible numbers will winter on the plains when the giant thistle has covered the plains in summer, congregating every evening wherever there are trees enough to afford a suitable roosting-place." They seem to prefer to nest near a human habitation for the sake of protection from birds of prey. The species has been freely imported; an account of its nesting in captivity will be found by the late Mr. Cresswell in the third volume of the AVICULTURAL MAGAZINE. Head vinous with grey crown and two black spots on the side; upper surface brownish-olive with black spots on wing-coverts and scapulars, there is no white band on the secondaries; sides of neck and nape metallic-purple with golden reflections; front of neck and breast vinous, passing into buffish-white on the under tail-coverts; flanks grey; upper surface of tail grey-brown with a black band across the middle, the three outer pair with white tips. Female duller. Habitat, nearly the whole of South America except the north-eastern part. The genus *Zenaida* closely resembles *Zenaidura*. There are fourteen tail-feathers but the tail is moderate and rounded.

The GALAPAGAN DOVE (*Nesopelia galapagensis*). This Dove was formerly very abundant in the Archipelago. It inhabits dry, rocky soil and often feeds with the flocks of the curious black Finches of the genus *Geospiza*. It used to be so tame that it could be knocked down by hand and even now seems remarkably tame. General colour brownish-olive; scapulars and upper wing-coverts brown, many with whitish centres with a black spot on each side; crown of head, breast, and abdomen vinous; ear-coverts whitish with a black strip above and below; tail brown with a black bar across the middle. Habitat, Galapagos Islands. Two races known.

The WHITE-WINGED DOVE (*Melopelia asiatica*). It is a pity that this pretty North American Dove can no longer be called by the appropriate name of *leucoptera*. Common in the West Indies, Gosse says that in Jamaica they live in flocks of twenty or thirty, flying in flocks like tame Pigeons. They feed on castor-oil seeds and orange-pips largely. The species was first bred by the late Miss Alderson in 1901, for which she received the Avicultural Society's Medal. An account appeared in Vol. VIII of the Magazine. Upper surface, throat, and breast greyish-brown; a broad white band on the wing from the bend to the tips of the greater-coverts; secondaries blackish margined with white; head purplish shot with golden green on sides of neck; a black stripe below the ears; central tail feathers brown, the rest dark grey tipped with greyish-white. Female similar, but with less purplish on the head. Habitat, southern border of the United States to Costa Rica, Bahamas, and Greater Antilles. A larger and paler race inhabits south New Mexico to Lower California, and an allied species (*meloda*), a little larger with less light grey on the tail, is found in Peru and Chile.

The BLACK-WINGED DOVE (*Metriopelia melanoptera*). I am placing this species here as Reichenow in 1913 pointed out that this bird is really allied to *Zenaida* and has nothing to do with *aymara*, which was associated with it. This latter bird with the yellow stripe across the wing is allied to the Pecui with a steel-blue bar. The Black-winged Dove inhabits the high regions of the Andes from 6,000 to 13,000 feet. Goodfellow found it numerous near Cotopaxi in Ecuador among rocks and lava, with nothing but a few tufts of coarse grass. General

colour greyish-brown; sides of neck and breast pale vinous; flights and tail blackish; bend of wing white; a primrose-yellow spot in front of the eye. The female without the vinous tinge on the under parts. Habitat, western South America from Ecuador to Central Chile and Argentina. A darker race in west Ecuador.

We have now arrived at the typical *TURTLE DOVES* or subfamily *Streptopeliinae*. They are medium-sized birds with a more or less distinct dark collar or with scale-like patches on the neck. The different species very easily hybridize. I have obtained birds with the blood of five distinct species. Nevertheless, as they can be easily separated into groups, as was done by Sharpe in his *Hand-List*, I will do the same here, though they are certainly not worth more than sub-generic value.

The *TURTLE DOVE* (*Streptopelia* (*Amoropelia*) *turtur*). By another unfortunate turn in modern nomenclature the genus *Turtur* can no longer be used for the Turtle Doves but must be transferred to a genus of African Bronze-wings to which it was first applied. The *COMMON TURTLE DOVE* of our woods and open country needs no description as it is so well-known. If unmolested it will come and feed with poultry. Though it leaves us in winter it is quite hardy and will live during the winter in an unheated aviary. It crosses freely with the Barbary Dove, producing fertile hybrids. One hen bird I had used to fly at liberty. Habitat, nearly the whole of Europe, with Madeira and the Canary Islands and Western Asia. Tropical Africa in winter. Four examples of the very interesting *ISABELLINE TURTLE DOVE* (*S. (A.) t. isabellina*) were deposited in the London Zoo in May, 1920. It is a more sandy-coloured bird than the typical race, especially on the head. Habitat, North-East Africa. THE *EASTERN TURTLE DOVE* (*S. (A.) orientalis*). A large dark edition of our bird. It is common in Japan, and its habits resemble those of the European Turtle Dove. After the nesting season it is found in flocks. Like *S. turtur* but larger, the scaly feathers on the neck are edged with grey; the under tail-coverts and tips of the tail-feathers are also grey. Habitat, India, North of Assam, Manchuria, Corea, and Japan.

The *NORTHERN INDIAN TURTLE DOVE* (*S. (A.) O. ferrago*) has been sparingly imported. I possessed a pair, but they never attempted to

nest. The cock occasionally uttered a deep guttural "*kur-kur-kur*". In the wild state they seek their food of grain and seed on the ground. They prefer a combination of cultivated areas and patches of jungle, near water. They nest at lower altitudes than the typical form and congregate in flocks of often over a hundred individuals during migration. Differs from *orientalis* by its paler coloration. Whitish on chin, abdomen, under tail-coverts and terminal band on tail; bill pinkish-horn, pinker on sides near tip; basal part with nostrils carmine. The female has been described as same as the male. In my pair the female differed by being smaller, less ashy on forehead, not so white on chin, and the fore neck and breast were without the vinous tinge of the male and all the colours less bright. Habitat, west Central Asia, Turkestan, Persia, Afghanistan, and the Himalayas, East to West Nepal and Lower Sikkim. In winter over West and South India even to Ceylon.

The MADAGASCAR TURTLE DOVE (*S. (Homopelia) picturata*) is the type of a small group of Turtle Doves to which Salvadori gave the sub-generic name of *Homopelia*. Distinguished by their unmottled upper wing-coverts and absence of a black collar on the hind neck, they are confined to the Madagascarian sub-region. This bird is common in Madagascar, where it is found in pairs or small flocks of from six to eight individuals, particularly in plantations and cultivated fields. They feed on grain and make great ravages in the rice fields at the time of sowing and harvest. It was first received at the London Zoological Gardens in 1866. In 1907 I secured a pair and successfully bred it, and an account will be found in the AVICULTURAL MAGAZINE, Vol. VI (New Series), 1907-8. Head grey; wings brown; scapular region tinged with rich vinous-purple; fore neck and breast vinous, gradually fading to white on the under tail-coverts; feathers on hind neck and sides of neck with concealed black bases and bifurcated tips which are greyish-vinous; lateral tail feathers dark grey with ashy tips. Habitat, Madagascar; also Mauritius, Réunion, and the Seychelles, where it has probably been introduced.

The ALDABRA TURTLE DOVE (*S. (H.) picturata aldabrana*) cannot be considered more than a race of the Madagascar. Little has been recorded of its wild life. It was described (1871) from a pair of living

birds in the London Zoological Gardens: they reared a young one in spite of the hen having an injured wing. Differs from true *picturata* by having the head vinous and with a distinct amethystine lustre on the feathers on the sides of the neck. Habitat, Aldabra Island. Other closely allied races from the Comoro Islands, Gloriosa, Diego Garcia, Assumption and Amirante Group; while a distinct species with large thick bill inhabits the Seychelles.

The typical members of the sub-genus *Streptopelia* form an interesting group. They are all (with three exceptions) African birds, and are distinguished by their uniform unspotted wings and complete black collar round the hind neck.

The HALF-COLLARED TURTLE DOVE (*S. semitorquatus*) is the largest of the Turtle Doves. A common bird over the greater part of Africa, inhabiting the edges of clearings, feeding on wild fruits and berries and taking a heavy toll of grain. This Dove is frequently imported and breeds freely. I obtained three birds in 1906 and reared many young ones. An account appeared in the AVICULTURAL MAGAZINE, Vol. V (New Series), pp. 318–24. Crown grey, paler on forehead; a buffy tint on the cheeks; rest of head and chest deep vinous-pink passing into lead-grey on the under tail-coverts; wings and central tail-feathers dark brown; a red bare space round the eye. Habitat, from the Egyptian Sudan and Abyssinia; also South-West Africa south to inland districts of Kenya to east South Africa. Other races from south Somaliland and West Africa.

The DECEPTIVE TURTLE DOVE (*S. decipiens*) is a very attractive species. It is very abundant in the Egyptian Sudan, feeding on seeds and grain and nesting by hundreds in medium-sized acacia-trees, it has a very curious loud note which corresponds to the laughing note of the Barbary Dove but which sounds like the “*mur-r-r*” note of the Guillemot. It is not very often imported. I had three typical birds and two cocks of the East African *permista*. An account of the nesting and habits will be found in the AVICULTURAL MAGAZINE, Vol. I (3), February, 1910. I did not find the species so hardy as most of the Turtle Doves. It is not unlike a small Half-collared: upper surface a warm brown; breast vinous changing into lead-grey on the flanks; under tail-coverts paler grey tipped with whitish; crown and cheeks

ashy ; chin and throat nearly white ; anterior part of head and nape vinous ; a very broad black collar edged above with ashy white on the hind neck ; central tail feathers greyish-brown ; basal half of under surface of tail black, apical half light grey ; bare skin round the eye grey tinged with pink. Habitat, northern part of the Sudan, south to Lake No, east to Sennar, and west to Kordofan. The EAST AFRICAN DECEPTIVE DOVE (*S. d. permista*) has all the colours brighter and darker ; back more ruddy-brown, and cheeks a shade darker grey ; white on chin and abdomen purer, a broad bare circle of red skin round the eye. Habitat, East Africa from Victoria Nyanza to the Zambesi. Five other races have been described.

The DOUBLED-RINGED TURTLE DOVE (*S. bitorquata*). A very handsome species ; like most Javan birds very little has been recorded about its wild life. Though very freely imported into India, where it is said to be quite a drag on the market in Calcutta, it is rarely seen in this country. I obtained two specimens in 1906 and two more in 1909. Most unfortunately, all four were male birds. Above earth-brown ; outer wing-coverts leaden-grey ; central tail-feathers brown, lateral feathers dark grey at base with bluish-grey tips ; crown grey, paler in front ; chin whitish ; a broad black collar with a white line above across the hind neck ; under surface rich vinous fading to white on lower abdomen and under tail-coverts. Habitat, Java, Lombok, Sumbawa, Flores, Solor, and Timor.

The CAPE TURTLE DOVE (*S. capicola*). A very common bird in South Africa, breeding in the neighbourhood of Cape Town, going about in pairs, though many may be seen feeding together on the ground on grain and seeds. Mr. W. Selater remarks that its constant harsh cooing becomes somewhat wearisome. I can well believe this as I remember what a constant noise a cock bird I had used to make. It is generally to be seen in the Zoological Gardens. Upper surface greyish-brown changing to leaden-grey on the outer upper wing-coverts ; sides of lower back and rump, tail, central feathers brown ; outer ones black at base, with ends of outer feathers white ; crown lead-grey ; sides of head, neck, and chest vinous-grey, middle of abdomen buffy-white fading to pure white on under tail-coverts ; a black collar and black line on the lores. Habitat, South Africa, east

to Natal, north to South Transvaal. This is the typical and darkest race. The DAMARALAND TURTLE DOVE (*S. c. damarensis*), which is most abundant in Damaraland, is said to have been imported. It is the palest race known. I think that the birds which belonged to the late Miss Alderson, and which were identified as *damarensis*, were really the East African form, *S. c. tropica*. They were imported with other Doves, which I know came from the Zambesi. I have the skins of two young birds bred from them, and they are certainly too dark for the Damaraland Dove; *tropica* is an intermediate form from Uganda and the inland parts of East Africa to North Transvaal. Three or four closely allied races are known.

The VINACEOUS TURTLE DOVE (*S. vinacea*) is the smallest and brightest coloured member of this group. It is extremely common, according to G. L. Bates, throughout Cameroon. Seen continually in the scrubby trees and on the ground, especially along the road, it is the common Dove of the countryside as the Senegal is the town Dove. It was breeding from November to February, and its rapidly uttered note was constantly heard. This note is described as "*Barbarù-barbarù-barbarù*", which caused Antinori in 1864 to describe one of its races as *S. v. barbaru*. Can this have anything to do with the name "Barbary", by which the nearly allied cage-bird is familiarly known? The Vinaceous Turtle Dove has been very frequently represented at the London Zoological Gardens, where it has bred freely. I have only had a single hen bird. Head, neck, and breast vinous pink, paler on forehead and changing to white on chin, throat, and under tail-coverts; a black line on the lores like the Cape Turtle; black collar edged above with whitish; upper surface earthy brown, pale grey on bend of wing; outer tail feathers black at base with white tips. Habitat, from Senegal and Nigeria, east to Abyssinia. Four races known.

The ROSE-GREY TURTLE DOVE (*S. roseogrisea*). Mr. A. L. Butler found it the commonest Dove in the Soudan. Near Khartoum it is exceedingly numerous, over fifty being seen in one tree near the river; it is also well distributed all over the desert. They were nesting in acacia bushes from 3 to 6 feet from the ground. Two birds were deposited in the London Zoological Gardens in May, 1920. This species

is of very great interest to aviculturists, as it is without doubt the wild ancestor of the tame BARBARY DOVE (*S. risoria*). I have gone fully into this question in an article which appeared in the AVICULTURAL MAGAZINE, Vol. XII (3), p. 100, July, 1921. Very like the domestic Barbary Dove but smaller and with the head, neck, and breast washed with delicate pink; a black collar on hind neck, but no black on lores. Habitat, North-East Africa. A race with dull blue-grey under wing-coverts from South-West Arabia is known as *S. r. arabica*.

The INDIAN RING-DOVE (*S. decaocto*) is resident in India, common in cultivated country round villages and towns, very sociable, feeding in company on the ground on seeds, grain, and berries. The note is a "koo-koo-koo" very different from that of the Barbary Dove. It is also found in Palestine and Asia Minor. I have seen it near Constantinople, and in Palestine I found it common on the plain near the Dead Sea. They were retiring to roost in the palm-trees at Jericho. Sixteen examples reached the London Zoological Gardens in May, 1912. A pair hatched young which were not reared, I believe. Three specimens came into my possession but I failed to breed the species. Head, neck, and chest pale vinous, paler on chin and forehead; flanks, abdomen, and under tail-coverts grey; a black ring on hind neck; back, scapulars pale brown, passing into pearl-grey on outer wing-coverts and secondaries; under surface of tail sharply divided into a black base and white-grey apical portion. Habitat, India and Ceylon; also Western Asia to China and Japan, Eastern Europe, Asia Minor, Palestine, and Siberia.

The BURMESE RING-DOVE (*S. d. xanthocycla*). In October, 1896, three Doves under the name Douraca Doves (*Turtur douraca*) were received at the London Zoological Gardens. They came from Burma and were supposed to belong to the common India form. My attention having been drawn to them, or rather to the sole survivor, on account of the yellow ring round the eye, I gave it the name *xanthocylus* (AVICULTURAL MAGAZINE, Vol. IV (New Series), p. 321, 1906). It is common in Burma in the dry zone, especially in the open spaces and cultivation near villages. Differs from the Indian bird by being slightly larger with all its colours darker and more vivid, but easily distinguished by broad yellow bare rings round the eyes. One of my birds from India

had the edges of eyelids and bare skin round the eye light bluish-grey. Habitat, Burma.

The genus *Ænopopelia* much resembles *Streptopelia* but it is distinguished by its long wing with the first primary almost as long as the second and by the different coloration of the sexes, which is unique among the Turtle Doves. It contains only a single species.

The INDIAN DWARF or RUDDY TURTLE DOVE (*Æ. tranquebarica*). This charming little bird is the smallest of the Turtles. It is a common and confiding species, keeping to well-wooded country near water, where it can drink morning, noon, and evening. It feeds on the ground on seeds, grain, and berries, and generally breeds in large trees away from the villages. In Annam it breeds in all the gardens of the city. It has frequently been imported. I reared a number of young some years ago. The male bird has the upper part of the head, lower back, rump, upper tail-coverts, under wing-coverts, and flanks grey; above and below vinous-red; a black collar round back of neck; lateral tail-feathers slaty-black at base with broad terminal ashy-white band. The female differs by being almost uniform earthy brown. Habitat, India, east to Bengal to Western Nepal. West it is common in Sind and the Punjab. The BURMESE RUDDY TURTLE DOVE (*Æ. t. humilis*). A number of birds under this name have been recorded on exhibition at the London Zoological Gardens, but as the habitat is given as "India" they were most probably true *tranquebarica*. The Burmese bird only differs from the Indian by being richer coloured and having the grey parts, especially the under wing-coverts, much darker. Habitat, Assam, Burma, Indo-China to China and the Andamans. An intermediate race inhabits East Nepal, Sikkim to Assam.

We now arrive at the last genus of the true Turtle Doves, which can be subdivided into two sections each with a single species but both having a number of local races. *Spilopelia*, with feathers of hind neck bifurcated, black, with two white apical spots and *Stigmatopelia* with feathers of fore neck bifurcated, black, with two rufous apical spots.

The CHINESE SPOTTED TURTLE DOVE (*Spilopelia chinensis*) is abundant and resident in China, placing its flimsy nest in a tree or

high bush : abundant also in Formosa on the plain. It is said to have been represented at Amsterdam as early as 1843, while the London Zoological Gardens record quite a number of specimens from 1869. An elegantly shaped bird with longish graduated tail. Head grey, paler on forehead ; nape black with the feathers forked and having two white spots on their tips ; upper surface pale brown and feathers unspotted ; outermost wing-coverts lead-grey ; under parts rich vinous, passing into grey on the under tail-coverts ; three outer tail feathers broadly tipped with white. Habitat, East China and Formosa.

The BURMESE SPOTTED TURTLE DOVE (*S. c. tigrina*). Robinson says this bird is very common throughout the Malay Peninsula, affecting open country and sandy plains. It occurs also in rice fields near trees. It feeds on grass and other seeds on the ground in early morning and afternoon. Found in pairs, also in flocks of six or seven. They nest in low trees and bushes, often quite close to the ground. This is a far better known bird than the typical Chinese Dove and breeds very freely in captivity. I had a hen bird for some years. Differs from *chinensis* by its smaller size, and having the under tail-coverts white and the wing-coverts with dark brown shaft-lines. In a living female the iris was rosy-red, pinker towards the pupil, no bare skin round the eye, edges of eyelids grey ; bill slaty grey. Habitat, Burma, Malay Peninsula, Greater and Lesser Sunda Islands, Celebes, Timor, and the Moluccas.

The INDIAN SPOTTED TURTLE DOVE (*S. c. suratensis*). This most familiar Indian bird is the prettiest member of the genus, very widespread wherever there is water, running about freely in gardens and villages or searching the roads for grain and seeds, the pairs keeping much together. They nest all the year round, both in trees and on buildings. Like *tigrina* but having the wing-coverts marked with two reddish spots on the sides of each feather at the tip. The eye is surrounded by a red ring. Habitat, India. A smaller race in Ceylon, and others from Yunnan, North-West Yunnan (Mountains), and Hainan.

The SENEGAL TURTLE DOVE (*S. (Stigmatopelia) senegalensis*). One of the most freely imported species and easiest to breed. There are a number of races, and it is quite impossible to say which have been

brought over. I have met with several of these in their wild state. The first of these was thirty years ago in Jerusalem, where it was then common, especially on the walls near the Damascus Gate; it does not seem to be so plentiful there now. The bird found in Palestine is supposed to be the same as that found in East Africa from the Red Sea Province south to the Cape Province extending to South Nigeria in the west and South Arabia and Palestine in the east. It is known as *S. (S.) s. æquatorialis*. It is very near the typical bird but not so red and more vinous-pink on the breast. In Egypt I met with *ægyptica*; probably the first bird seen at Alexandria will be this. Numbers can be seen on the roofs of the sheds or the wharfs or running about on the ground in search of food. It is essentially a town bird, living and nesting on buildings. This is a very red bird, rather larger than true *senegalensis*. It is confined to Egypt. Lastly, in Algeria and Tunisia, south of the Atlas Mountains, wherever there are palm groves I found Senegal Doves—or, as they are rightly called, the Palm Doves—numerous. They live in the date palm and perch on the mud walls of the native houses, feeding in the surrounding open country in the neighbourhood of the villages, their gentle trisyllabic note “*Boo-boo-boo*” being continually heard. The North African form *phœnicophila* is rather larger, with browner tips to the feathers of the upper parts and less pinkish on the underside. Habitat, Algeria, Tunisia, and Morocco south of the Atlas. Typical *senegalensis* has the head and breast rich vinous, a broad black collar of bifurcated feathers with rust-coloured spots on the tips encircles the front and sides of the neck; upper surface brown, the feathers marked with rusty vinous; lower back, upper wing-coverts, and secondaries lead-grey; abdomen and under tail-coverts white; central tail-feathers greyish-brown; outer ones slate-grey at base, with white apical half. Habitat, Senegal and Northern Nigeria. Allied forms from the Sudan and Socotra Island.

The INDIAN LITTLE BROWN DOVE (*S. (S.) s. cambaiensis*) is also another sub-species of *senegalensis*. It is one of the most familiar and abundant of Indian Doves, frequenting the neighbourhood of houses and coming into the verandahs. It abounds in cultivation, feeds on the usual seeds and grain, nests from January to October in trees and

bushes at no great distance from the ground, and also on beams, window-sills, in verandahs, and even on the ground. Differs from *senegalensis* by having the upper parts pale earthy-brown, without the reddish marks, and the rump brown-like back, never grey. Habitat, India. A larger and paler race in Turkestan and Persia called *ermanni*.

THE BREEDING OF THE TURQUOISINE (*NEOPHEMA PULCHELLA*)

By the MARQUESS OF TAVISTOCK

Many years ago, I suppose, the title of this article would have merited about as much interest and attention as one headed "The Breeding of the Zebra Finch" or "The Breeding of the Budgerigar"; but times have changed: the lovely little Grass Parrakeet, once so well known, dwindled, became rare, and finally disappeared and was for a number of years believed to have joined the ranks of extinct birds. Then it reappeared again, not in its former numbers, but just a few scattered pairs, some of which were caught and found their way into the hands of aviculturalists and dealers, Mr. Harvey of Adelaide, being one of the first to breed the species again in confinement in its own land. My own birds, which are the subject of this article, reached me in the spring of 1928. They were then in nestling plumage, but the sex of the young cock, as is always the case, was plainly discernible by the greater amount of blue on his face and head. After a period of rest and quarantine in the hospital, they were transferred to the dining-room. As it is impossible to buy in the market any cage in a condition suitable to accommodate any bird and as most cages offered for sale in shops cannot even be rendered tolerable by a fairly drastic process of refitting and overhauling to correct structural errors and remove useless gadgets, all my stock cages for Parrakeets have to be specially made by a local firm. That which the Turquoisines occupied was a rectangular one of wire netting on a metal frame, about 3 feet long by 2 ft. 6 in. by 2 ft. 6 in. It had a false roof of

canvas, which is necessary to prevent all Grass Parrakeets from fracturing their skulls, and some detachable sheets of zinc round the back and sides to keep off draughts, for an unprotected all-wire cage is a dangerous residence for delicate birds. (How many unhappy Waxbills meet with a premature end through being confined in that chilly and unhygienic abomination known as a Crystal Palace "aviary"!) As is usual with Australian Parrakeets imported at that time of year, the young Turquoisines began to moult a few weeks after their arrival. By this time they were getting back their strength and spirits and indulged in as much playful frisking about as the narrow confines of their cage allowed and in a little mild squabbling. The cock also began to feed one of the hens. I felt sorely tempted to keep all of them, but knowing too well the vilely unhealthy nature of Warblington, where you cannot even moult an imported Ancona rooster, let alone be safe with a delicate Parrakeet, I knew that I must be unselfish and let two of the hens, at least, go to help the preservation experiment I have initiated with the help of American friends, in California. I had already sent over a cock and when I last had news of them he and one of the ladies above mentioned had gone to nest and by now, I trust, have reared a family.

The remaining pair passed the next few weeks uneventfully, but just as I was thinking of putting them up for breeding I had a horrid fright, for one morning I noticed the cock closing one eye and rubbing it. In 999 cases out of 1,000 when you see a Grass Parrakeet doing this it means the first onset of eye disease, and the bird's fate is sealed. With a sinking heart I caught the cock and isolated him, fearing the worst, but by a most lucky chance it proved to be some trivial and passing irritation, no further symptoms developed, and I was able to return him to his mate. We had another alarm with him some weeks later, when he caught a chill, due, as I have since discovered, to the use of damp sand on the cage floor. For years I had the most puzzling and often serious and fatal trouble with chills in my warm bird-room and in the house, and it was only when at last I noticed that these illnesses always began the day after the cages were cleaned, that I traced the trouble to its true source. Only a very slight degree of moisture in the sand was enough to cause a dangerous illness, and

quite robust birds were occasionally among the victims. I lost a lovely albino Roseate Cockatoo from this cause, and all but lost her mate as well. The cock Turquoise recovered in the hospital at a temperature of 85°, but damp sand was destined to play us another trick later on.

It being unsafe to put the birds in an outdoor aviary in such a desperately unhealthy district, when summer arrived I turned them into a large flight cage about 7 feet by 3 feet by 4 feet high and provided them with a wooden nest-box filled with a few inches of earth. The cage was placed on metal stands in a large and fairly sunny window free from draughts.

The birds were in no particular hurry to go to nest, and when I returned home at the beginning of August after an eight weeks' absence, I found that no eggs had been laid and that the cock was again moulting, having decided, as many Australian Parrakeets do their first year, that although he had moulted barely three months before, it would be as well to get into line with the customs of the northern hemisphere by moulting again when all the other birds were so engaged. I nearly took the nest away, but as the hen was not moulting and seemed to be taking an increasing interest in domestic affairs, I decided to wait a little longer. After a while, seeing that his wife meant business, the cock stopped his moult (birds seem to be able to moult or to refrain from moulting, just as they seem able to lay eggs or to refrain from laying them, at their own pleasure rather than by reason of any compulsion of their physical nature!) and began to give serious attention to his duties as a husband. He did not utter a pleasant warbling song. The Turquoise, like all the Grass Parrakeets, has the gentlest of voices, but the musical accomplishment above mentioned appears to be one of those creations of the imagination to which old writers on aviculture seem rather strangely prone. He did, however, help her to examine the nest, and he also fed her; and when she was near laying she wanted a lot of feeding, constantly bobbing her head up and down with a little rapid movement that was almost a quiver. The Turquoise has not a very marked display; he is so beautiful when in ordinary movement that he merely needs to draw his plumage a little extra tight, very slightly spread and expand his wings from the shoulder and walk,

fly, and alight with a little extra swagger, to reveal the matchless shades of enamelled blue in all their perfection.

It was the first week in September that the hen actually began her clutch—four eggs as I afterwards discovered. We gave her gin and glycerine mixture instead of water and there were no egg-binding complications. She sat a bare three weeks, and when I returned from a short absence I heard squeaks proceeding from the box—the tiniest, most fairy-like squeaks it is possible to imagine. The cock was a devoted father : as soon as his baby daughter arrived he started roosting in the box and spent most of the first few days there as well. As he was not needed to cover the small atom of white fluff and could not have spent so much time in feeding her or her mother, it must be assumed that he liked being near her ! Two of the eggs were infertile and one addled—not very surprising seeing that the male Turquoise was young, newly imported, and moulting about the time that they were laid.

For a few days all went well ; then I cleaned the cage. The old pair were too steady and sensible to be at all upset, but again the sand was a little damp and next morning the hen was off the nest and looking slightly but most unmistakably ill ! The situation was one the poignancy of which can only be appreciated by those who have been similarly situated with their most valuable and treasured birds. What was to be done ? Hand-rear the young one ? What chance was there of keeping such a tiny and fragile nestling at the right temperature and giving it the right food at the right intervals ? Finally I decided to move the whole family into the hospital. It was a desperate venture, but the situation was desperate, for the neglected baby was already squeaking plaintively with cold. The cage, as I have said, was a very big one. When we got it down to the hospital we found it would not go through the door ! However, by taking out the sand-trays and taking an inner door off its hinges we got it in with a tight squeeze. The radiators were turned on and the birds left quiet and all one could do was to hope for the best. About an hour later I peered cautiously through the window. The heat was doing its work and the hen looked better. After a while she gave herself a shake and flew down to the seed dish ; after feeding with due deliberation she approached the nest.

and, oh ! joy, went in. Later in the day she was still sitting and next morning was quite herself again. For the time being the situation was saved.

No further incident occurred until the young bird was old enough to leave the nest. She made her first exit when I was away from home, and the aviary attendant told me he had put her back as she did not seem sufficiently developed to be out of her home. I was rather surprised at this as an only child with the devoted care of two parents should have made more rapid progress. A few days later I found her on the floor of the cage myself, but alas ! it was a sad disappointment. Although more than a month old she was a miserable-looking little creature with the development of a nestling of only a fortnight. Her body was still covered with down and her quills were only a quarter grown. More serious defects were likewise apparent. Her legs were weak and straddly and both back toes of one foot came forward ; she appeared unable to close her beak, which was wide open, and she breathed unnaturally heavily. She was in every way in much worse condition than when she came out the first time, and it was evident that the nest had not suited her at all. Although quite unable to fly or even walk, her instinct had urged her to make a desperate effort to get away from the environment that was quickly killing her (she was much weaker than on the first occasion when the aviary attendant had found her out) and it was lucky that she had done so, for a few more days in the box would certainly have resulted in her death. I have reared robust Blue-winged Grass Parrakeets in similar boxes with ease, but the young Turquoise had been attacked by rickets exactly as a Crimson-wing would have been under like circumstances. The only thing in the nestling's favour was that her eye was bright and her crop full, but I never expected her to live more than a day or two. Very soon she got into trouble on the cage floor and I found her a few hours later with her eyes and beak full of sand. I therefore decided to fill the entire bottom of the cage with short turf—by far the most comfortable and health-giving material for a bird in her condition. After she had fallen into every possible hole and I had discovered each one and filled it up things began to go a bit better, though I must say I was surprised to find her still alive next morning. I was rather uncertain whether

the parents would continue to feed her as birds commonly adopt an attitude towards weakly children that says more for their appreciation of eugenics than for their tenderness of heart. The cock, I think, was a bit doubtful about going on with the job, being of opinion that his daughter would never be a credit to him. The mother, however, stuck most commendably to her task and each evening found the baby with a full crop. In order to counteract the obvious tendency to rickets, I started giving the young bird a mixture of raw egg, milk, and cod-liver oil from the end of a paint-brush. From the first she took her tonic like a lamb. I gave her about eight drops morning and evening, and she would have taken more had I thought it prudent to increase the allowance. She did not, however, become tame, and it needed some care and patience to avoid alarming her. After a few days it became apparent that her early decease was less certain than I had expected. A few days more and she was undoubtedly stronger and beginning to move about with greater activity. Then one morning to my great joy and surprise I saw that she was using the back toes of her defective foot and not long afterwards she was running about the cage in quite a normal manner. The introduction of a twiggy branch on the floor soon encouraged perching, and her feathers were growing steadily. She never at any time showed "French moulty" weakness of the quills of her flight's and tail, but it was a long while before her cheeks and head were properly feathered. All this time her beak had been slowly closing; she began to eat green food and soaked seed. Her wing-feathers were fully grown, and at last the great day arrived when she actually used them to good purpose. I happened to witness her first attempt: her parents had just flown up on to the high perch. She watched them, gathered herself for an effort, and shot up into the air in the most creditable manner. She did not succeed in landing, but it was from inexperience rather than lack of wing power, and she turned and flew back nearly the length of the cage before coming to the ground again. A few moments later she had another try, and this time settled beside her parents. The hopeless little cripple was actually reared into quite a presentable specimen! Once she could fly the young Turquoise quickly began

to refuse my egg-milk ministrations, and after leaving the mixture in her cage for some time longer for her to drink if she felt inclined, I finally gave it up altogether, and put her on the usual diet of canary, white and spray millet, oats and green food, hemp being bad for Turquoisines, though not harmful to Blue-wings. A week or two later I noticed that her father was getting tired of her, and was inclined to swear at her and drive her off when she approached him. I therefore put her in a separate cage as long as her old one but not quite so high, keeping her still on turf which is changed weekly. I was a bit anxious at first, as I had read dreadful stories of young Turquoisines starving themselves to death when first separated from their parents, but her appetite did not suffer and, indeed, she has never had a day's illness. About mid-winter she began to look rather ragged and I feared she might have parasites or be starting to pluck herself, but it turned out to be nothing more alarming than her first moult. She moulted very clean, and is now a handsome hen almost as big as her mother. She would have been quite ready to try to breed this summer, but owing to the vicissitudes of her early career I felt it would be very imprudent to allow her to make the attempt before her second summer. Probably she will never make a good stock bird, but it would be very interesting if she did.

The old Turquoisines came back to the dining-room after their daughter was launched in the world. They are still rather at sea over their moulting, with the result that during the past fifteen months they have had almost as many moults as a grouse! They had one soon after their arrival; the cock had another partial one in July; they both moulted in mid-winter after breeding, and they again moulted in April at the usual Australian season. All those moults were perfectly healthy and normal, and in no way affected their condition or spirits. At the end of May I put them up for breeding, giving the hen a bottomless box of sacking on a wooden frame which stands on the floor of the cage in a very thick turf. The entrance hole was about three inches from the floor. She soon took to this new type of nest and came into breeding condition quicker than I expected and before I had put in the gin and glycerine. The result was that one morning, to my disgust, I found her egg-bound with her first egg.

I put her in a small cage in the hospital and after a long wait the egg arrived. I placed it in the nest and the hen back in the cage, but I soon discovered that, unlike most egg-bound hens, she had not recovered at once, but was still feeling unwell. This time the whole breeding cage had to go back to the hospital. She recovered in the heat, but took no interest in the egg and finally broke it to bits, making further excavations for a new nest. I greatly feared that she was out of condition from lack of exercise, and that she would never do any more good until I moved to a place healthy enough for her to inhabit a proper aviary. However, I resolved to do the best I could and when she again seemed near laying, I not only gave her gin and glycerine but placed a portable electric stove near the nest. (How blessed is the steady, fumeless heat of electricity for such emergencies!) To my relief and surprise this time all went well and she laid no less than five eggs, some, at any rate, of which have duly hatched. It will be interesting to see if the new nest arrangements prevent the recurrence of rickets in this brood.

It cannot be said that the domestic life of my Turquoisines is one of undisturbed bliss, though I fancy the rather frequent upsets are more due to individual peculiarity of temperament than characteristic of the species. Rather serious rows are of pretty regular occurrence, and I have more than once been on the point of separating the combatants to prevent serious disaster. Usually the cock is the aggressor, but occasionally the hen turns the tables on him and gives *him* beans for the way in which he has treated her on a former occasion. Like many Parrakeets, the cock is liable to lose his temper with his wife if he thinks she is unduly slow about settling down to her domestic duties and chases her savagely about with every sign of anger until she takes refuge in the nest. He also possesses the peculiarity that he cannot bear to have another Grass Parrakeet, and particularly another Turquoise, in the same room. If he hears one call he instantly attacks his mate with the greatest fury and would certainly kill her if the offending neighbour were not instantly removed. Apparently he thinks there is no point in the distinction of being an almost extinct bird if you are to live in a place which constantly resounds with the conversation of your relatives, and he blames his

partner for inviting such a crush through her feminine love of social gatherings ! I have often remonstrated with him over the unreasonableness and unfairness of his prejudices, but so far wholly without effect !

What is going to be the fate of the Turquoise ? In a wild state its future does not appear hopeful. It is true that it has come back, but in nothing like its former numbers. What has been the cause of the disappearance of the flocks mentioned by old writers ? We know that a good many have been shot, and it is not difficult to see that poison, bush fires, feral cats, the destruction of drought refuges by increasing settlement, and the prevention of the seeding of the grass by grazing sheep may all be adverse influences. But probably Mr. Mathews is right in suggesting that man is not wholly responsible for the decrease of the Grass Parrakeets and that they are going down before those adverse natural influences which have been removing species from the world before the dawn of history and within recent years, especially in the New World, have mysteriously wiped out certain birds which are known never to have been the victims of serious human persecution. If this be true, no legislation nor protective measures can save the Turquoise in a wild state. In Australia, in confinement, it has bred freely since its re-discovery, but it also seems to have died freely, whether from preventable causes I cannot say. In Europe it probably could be saved, but it is not likely that the attempt will be made. It is an easy matter to breed Turquoisines once or twice, but to maintain a stock involves trouble, some expense, and some self-denial. They are not everybody's birds : intolerant of the presence of their own kind, adult pairs must be kept separate ; only half-hardy, they cannot safely be wintered in outdoor aviaries ; needing extreme cleanliness in all their surroundings they cannot for many years survive the dirt of the average bird-room ; not even the relative degree of dirt present in the rooms of those who would be highly indignant if it were suggested that their indoor aviaries were "dirty". How sensitive Grass Parrakeets are to dirt is shown by a case known to me of an aviculturist who for a time was quite successful in keeping and breeding Blue-winged Grass Parrakeets, until some emergency obliged him temporarily to confine them in an aviary occupied by a flock of young Budgerigars. The Budgerigars were

quite healthy, but the increased amount of droppings lying about proved too much for the Blue-wings and soon practically the entire lot were wiped out by eye-disease which is usually started by the eyes, beak, and nostrils of a bird of a susceptible species coming into contact with a soiled perch.

It is to aviculturists living in the warm parts of the United States that we must look to save the Turquoise and its allies. They have a climate where it has been proved that the birds will thrive and breed, and can be left out-of-doors the whole year round. All that is needed is money for the construction of movable aviaries of the right size and for the purchase of ground for the aviaries to stand on. May our American friends show themselves alive to their opportunity before it is too late !

SUNDAY RAMBLINGS

By CAPTAIN H. S. STOKES

It is a blazing day in July : the sky a cloudless blue, the grass a vivid green, trees in their full canopy of summer leaf, the water clear and sparkling, the waterside foliage full grown and cool and luscious, flower beds almost in their summer opulence, herbaceous borders full of lacy gothic spires and minarets all composed of blue and purple delphiniums ; roses smelling hot, pinks and honeysuckle pouring out their scent. What more could the heart of man desire ? What ? And I look lazily for an answer, and gratefully find it and give it.

Birds are the absolute completion of all this loveliness ; birds in these surroundings, walking and swimming and flying and singing and making love all around one.

Not birds in backyards in pens, caged up with sheets of rusty iron, not birds away somewhere in a meadow in ugly unplanted aviaries, range upon range and all alike ; but birds loose in the garden as part of the landscape, birds on the stream, birds in aviaries in the garden, each aviary a little garden in itself, and birds in cages hanging out for an airing under old apple-trees on the lawn. It is not so very difficult or unattainable ; there are two main requirements, a sense of proportion and an eye for beauty. Always aim at making your birds and garden

part and parcel of each other. Always make an aviary which is an improvement to the garden and not an offence to the eye. Plant it so that it has a character of its own; let your small pool or bath, your grass plot, your gravel or your paving be well balanced for size and proportion and your birds will look ten times as lovely. Here we may consider the question of shrubs and plants for aviaries, to which I have given some thought. Aviaries enclosing brick or stone walls should have climbing plants appropriate to those walls—ivy, large-leaved or small, the common wild clematis called travellers' joy, golden hops, climbing roses and syracantha. Ivy is not poisonous, for I have seen my Rollers and Touracos eating whole leaves of it without ill effect.

Evergreens should include cupressus, box, *Lonicera nitida*, common laurels, beneath whose leaves Gouldian Finches love to roost and keep quite dry in storms, and the common white rhododendron, called Cunningham's blush. The only drawback to rhododendrons is that being calcifuge you cannot lime the ground round them. Yew is poisonous to animals and should be avoided. The common bamboo (*Bambusa metake*) does very well in aviaries and grows into good clumps, but the more feathery species do not seem to stand the drip from the roof wire. For this kasæ, also *Ancuba japonica*, is bad. Deciduous shrubs which are good are golden privet, syringa, and lilac.

The giant knotweed (*Polygonum sacchalinense*), herbaceous, and growing some 7 feet high in the season, is good for summer shade and to give an aspect of tropical luxuriance with its huge leaves. Grass-leaved plants are very important for the borders in front of the shrubs. Many ground birds and most Whydahs like to nest in a tuft of grass. *Carex japonica pendula* and the feathery wild *Aira cæspitosa* are good, and have character, and the common montbretia, grown in large clumps, is useful.

Parrakeets cannot be kept in planted aviaries, as they chew up anything alive. For this reason I think it difficult to make Parrakeet aviaries attractive. Modern authorities indeed banish all attractions (except the birds) from them, and insist on movable aviaries and absolute hygiene; probably quite rightly from the point of view of breeding rare Parrakeets from generation to generation, to preserve them from extinction.

I notice with some alarm, however, the same conditions now being recommended for Sugar Birds and small Tanagers, and hope the day will not come when we must have these lovely little creatures in movable pens in a meadow, or not venture to keep them at all. Let us wander round together and look at some of the birds. The Blue Mexican Jays are busy making a nest, and their strength in breaking off quite big live branches for it is amazing. If they mean business the other insectivorous birds will have to be moved from their aviary, for I must confess I have not enough self-restraint to keep only one pair of Soft-bills in each aviary. And when that is done the hen will probably die of egg-binding or the cock will eat the young. Sit and watch the Shammas (the hen as well as the cock) pouring out their song from a honeysuckle bush ; the Yellow-winged Sugar-birds enjoying a syringa in full flower, the Senegal Touracos eating leaves from a crab-tree.

Some baby Falcated Duck and a bevy of Waders, Plover, Godwit, Redshank, and Wagtails are all busy paddling among the duckweed of their little pond. Black-capped Fruit Pigeons are basking in the sun with wing uplifted. Last year two pairs each reared a baby to ten days old and then left it to die. This year, after planning precautions against this, the tiresome creatures have not nested at all.

And now come round the garden with me. Let us sit under an old hawthorn-tree on the bank of the stream and see the creatures pass before us. A dog and a cat and, of course, the Trumpeter, are at our side. You cannot ever go round the garden without the Trumpeter, in fact, he now insists on coming into the house every day for tea. The Demoiselle Cranes are so tame that they come almost up to us. They seem to me the birds par excellence for any moderate sized garden. Graceful and beautiful, not fierce or destructive to plants, hardy enough to be out in all weathers, though on our cold clay soil we shut them up on winter nights.

The four Flamingoes are indifferent to our presence. They pass along in the water within a yard or two, working for food in the mud of the stream, or tying their necks in knots to preen themselves, or splashing vigorously to clean a foot before scratching their head with it. Why do so few people keep Flamingoes ? Any muddy pond or stream will make them happy ; they sleep on the water and never

leave it. They are absolutely hardy, though they must be driven into a stable in frosty weather or their slender legs will break on the ice. A bucket of soaked bread and wheat and an occasional treat of shrimps supply their needs. Mine now walk across the lawn and past the garage, and put themselves to bed in the stable in winter, which shows that Flamingoes are not nearly so stupid as they look.

Now look at the Ducks. Any garden with any water at all ought to have Duck, even if only one pair. Other and abler pens have written comprehensive articles on them, their habits and requirements, but let me again urge their beauty and charm and amusing ways.

This is the time of year to think of starting Duck, for you want hand-reared and pinioned young birds from a Duck-rearer, and not wild caught ones imported in winter, which will be hopelessly wild and never breed. Duck in a garden do not spoil or damage or deface their surroundings with heavy wet paddling feet if you choose the right sorts. They are rather apt to sit on waterside plants in the spring, but this can be easily avoided by wire-netting only a foot high stretched round the foliage groups, and the wire will soon be hidden by the growing leaves.

Duck (except Tree Ducks) are absolutely hardy ; mine were out the whole of last winter and seemed to enjoy it. The change from young plumage in the drake to the smart and gorgeous full dress he assumes in the first autumn, and the change back into eclipse plumage in July after the breeding season are always a source of wonder and delight to me. Nothing could be more charming than to go round the garden and meet a pair of Mandarins or Carolinas busy slugging on the lawn, or to watch a pair of Tufted Duck diving for their food. But let me warn you to have the whole garden either netted or walled, for some Duck like to wander, and especially in the breeding season will be off and away without this precaution.

Tree Ducks are charming, too ; they become very tame and spend much of their time walking on the lawns. They are not very hardy till after their first winter in England, but are tame enough and sensible enough to be driven into a stable for frosty weather. In spite of the heat, I could go on rambling with you for hours, but you would certainly get very bored, so I will stop !

NOTES FROM A LONDON AVIARY

By A. SHERRIFF

It may interest a few readers to hear the results of a London aviary during the last year.

In spite of the very severe winter all the birds (a mixed collection) did very well, and losses were mainly confined to one or two small seed-eaters and a cock Blue Sugar Bird which was killed, it is feared, by a cock Black-headed Sugar Bird.

As usual the first birds to show any signs of breeding were Chinese Painted Quails, which started laying eggs in the middle of March. Long-tailed Grassfinches had three young ones out of the nest by the end of April, and are doing well. The Long-tailed Grassfinches, Red-beaked variety *Poephila acuticauda* (*hecki*) have been to nest twice, and in both cases unfortunately the eggs have been clear.

The Long-tailed Grassfinches have had to be separated from Gouldians and Parrot Finches, not because they were quarrelsome, but because they have a habit of taking possession of any other nest as sleeping quarters. Parrot Finches are sitting at the moment, and should hatch any day. The Gouldians, however, are only just showing signs of wanting to breed as they have really only just got over the moult.

Black-headed Sibias incubated one clear egg, which was most disappointing. There are four of these birds in the aviary, the original pair and two young ones, which were bred two years ago. Owing to an oversight, the young birds were never rung, and it is impossible to tell the parents from the young birds. They have now arrived at a point where two of them refuse to live together. For fighting they are amazing. The two birds in question, if allowed to meet, will drop to the ground clasped together by their claws, and have to be separated by hand. It is a strange thing, because as a rule they have always been most sociable.

Red-whiskered Bulbuls sat for seventeen days on four eggs, but owing to their nervousness did not incubate properly, and the eggs were addled.

A pair of Shamas have now got one young bird about nine days old.

Out of the first nest two young ones were hatched, but it is feared were killed by the mother. She had on a previous occasion murdered her young.

One of the biggest disappointments was the nest of the Black-headed Sugar Bird. There are no records of this bird having bred in captivity. They are in perfect condition, and about a month ago were placed in a very large aviary with plenty of undergrowth with a pair of Shamas and the Bulbuls mentioned above.

Excited antics on the part of the cock aroused the idea that there was a nest somewhere, but at no time had the hen been seen to be carrying any nesting material, although she had been provided with plenty.

After careful searching a nest was found about 5 feet off the ground in the fork of a young plane-tree. It consisted at the base of cotton-wool and the cup was made of fine fibre which is provided by unravelling coarse hemp and rope and cutting it into small lengths. The nest was not lined in any way, although hair, etc., was available. The cup was very shallow, and did not measure more than 3 inches across. Two eggs were laid with an interval of one day between the first and the second. The hen sat very close, and on the 13th morning, one young one was hatched, but through some carelessness on the part of the hen the young one fell out of the nest. Apparently unhurt, it was replaced; the other egg had not yet hatched. It might be mentioned here that the pair of Shamas had been transferred to another aviary, and only the Bulbuls remained. In the afternoon the other egg had disappeared, and although the shell was found later, only one dead youngster could be traced. This was covered with a blackish grey down. The eggs were about three-quarters of an inch long, pinkie white, with a fair number of brown spots.

For three or four days nothing further appeared to be happening, the Bulbuls were removed, and it was decided to allow the Sugar Birds a week to see if they showed any further signs of going to nest. After five days a nest within 9 inches of the previous one was noticed; this time, incidentally, the cup was much deeper and the hen is now sitting tight on two eggs. Perhaps this time she may be successful.

There are no other birds in the aviary with the exception of a pair

of Quails with one young one. Four of these birds were hatched, but three died after three days. Is it on account of the difficulty of obtaining tiny insects that the first week of the young Quail's life is so precarious? At any rate the remaining one is doing very well indeed, and it is amusing to watch it sitting next to the hen, who is again incubating.

It may be of interest to mention here that last year a pair of Blue Sugar Birds went to nest twice, but on both occasions the eggs were clear. The nest and eggs were very similar to those of the Black-headed Sugar Bird with the exception that the nest was carefully lined with hair. Unfortunately, although there are two hens in the collection, it is impossible to get another cock. The nest in this case was built in a pyramid bay-tree about 3 ft. off the ground.

With regard to the Parrots a pair of Red-rumped Parakeets made an attempt to breed, but the cock died suddenly, and although the hen continued to sit, nothing resulted. Exactly the same thing occurred in the case of a pair of Stanleys.

Emerald-spotted Tanagers have been given an aviary to themselves, and, although no sign of nesting has yet been shown, there is still time. These birds are extraordinarily pretty, and very lively indeed. They appear to be quite harmless with other birds, unlike some of the Tanagers, and are a most welcome addition to the aviary.

A pair of Orange-headed Ground Thrushes are nesting, and the hen has been sitting on two eggs for a week now.

In the mixed aviary a Bengal Pitta, presumably a hen, has been spending all its time making nests in odd places.

This bird has been in the aviary now about four years, and has always been together with an African Roller. For many months, whenever the Roller came to the ground for mealworms, the Pitta would fly at him until the Roller flew off the ground. Now, however, they are close friends.

Perhaps some one else may be tempted to let us hear their breeding accounts, as, apart from the general interest, they are so often of great help.

Does continuous dry weather, such as we have experienced this year, have any effect on the fertility of eggs?

WHO'S WHO IN AVICULTURE

Mr. Arthur Prestwich has produced a very useful little volume in *Who's Who in Aviculture*, for all of us like to know something about others who follow the same bent as ourselves. This is the first series, and contains short accounts of a large number of aviculturists. It is not complete, many names having been omitted, as was inevitable in a first venture of the kind, but it is hoped that all who consider themselves aviculturists, but whose names have not been included, will communicate with the Editor (Mr. Prestwich), so that this may be made as complete a volume of reference as possible. It is published by the Avicultural Book Club, Winsor, Southampton, at the moderate price of 2s. 9d. post free.

CORRESPONDENCE**QUEEN OF BAVARIA CONURES**

SIR,—I find that I am compelled to get rid of my Queen of Bavaria Conures, owing to their tiresome and vicious habits, and wonder if there is any member in England or abroad who would like to have them, being in a position to exploit their good qualities and cope with their bad ones?

They are two true pairs, thoroughly acclimatized, and one couple have been seen to mate. The cocks are perfect specimens, but both hens are inveterate feather-pluckers, and one cannot fly, never having grown her flight quills after the cut stumps were removed. The feather-plucking started through my keeping the birds on mixed seed for too long after their arrival instead of getting them on to plain canary at the earliest possible moment, which seems necessary in the case of this species. When they have denuded themselves the hens are inclined to start on their mates, but the cocks do not pluck themselves. One pair I trained with very little trouble as liberty birds, and they behaved admirably as far as staying went, returning every night to roost in their aviary shelter, never leaving the garden, and doing no noticeable damage to the trees. I should doubtless have cured the hen and probably got them to breed had they behaved decently to the other aviaries and their inmates, but instead of living in the trees they would.

spend their time on the aviaries yelling at any Parrots or Parrakeets that excited their curiosity or dislike and destroying the woodwork round the windows of their aviary shelters. Though arrant cowards with any bird at liberty that stood up to them, they finally became very vicious with timid birds that could not fly well, attacking them as they were climbing the wire. After they had mutilated an Amazon and killed a nestling Crimson-wing, I had to shut them up and no doubt the hen will recommence plucking more furiously than ever! They were terribly costly birds to buy, and are a great disappointment, confirming the already low opinion I had of the Conure genus! In their favour it may be said that they are extremely pretty on the wing, and do not seem to take any notice of non-psittacine birds, nor, of course, can they injure aviary birds that can fly well. It is possible, therefore, that someone with no vulnerable aviary stock might do really well with the full-winged pair, and derive much pleasure from them. Something might be done with the second pair, if treatment could promote the growth of the hen's primaries on the defective side, her other quills being healthy and normal. The two pairs will not, however, agree.

TAVISTOCK.

BIRDS IN AMERICAN ZOOLOGICAL GARDENS

SIR,—Anent the letter from Mr. Lee S. Crandall, which appeared in the *AVICULTURAL MAGAZINE* for June, Mr. Crandall takes exception to a sentence in an article by me in which I am made to say that there are only 150 species of birds “in any of the American Zoos”. This should, of course, read “in many of the American Zoos”. I trust that no English aviculturist has been misled by this obvious error. I should like to take this opportunity of congratulating Mr. Crandall on his success in landing safely so many varieties. Also Mr. Shaw Mayer—whose birds I have had the pleasure of seeing—for bringing what must be one of the finest collections ever to reach this country. Incidentally, would it not be possible for the Society to award a medal for “services rendered to aviculture?” Such a medal could be designated the “President’s” medal and awarded either yearly or as the Council deemed advisable.

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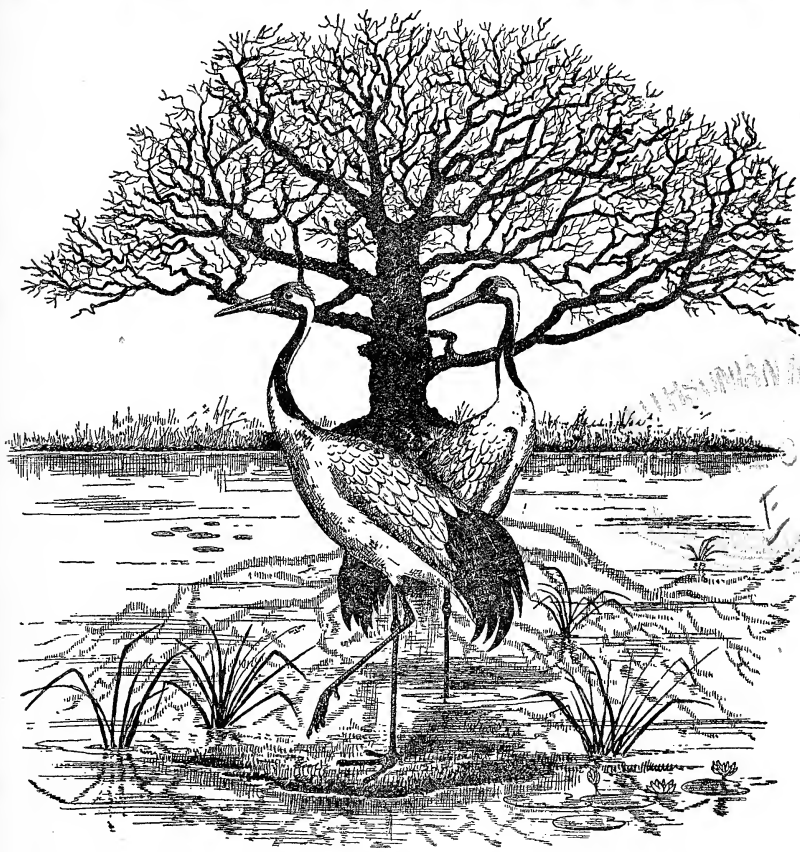
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THE AVICULTURAL SOCIETY.

FOUNDED 1894

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Green Broadbill.
Calptomena viridis.

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF
THE AVICULTURAL SOCIETY
FOR THE STUDY OF
FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

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THE GREEN BROADBILL

The subject of the accompanying plate was presented to the Zoological Society by Mr. J. Spedan Lewis on 29th November, 1928, having been brought to this country from the Malay Peninsula by Mr. Walter Goodfellow. So far as I am aware, it is the only example of any species of the order *Eurylæmiformes*, or Broadbills, that has been imported.

The Broadbills are confined to the Oriental Region, the chief characteristic features of the group being the very broad and flat bill, short tarsi, and large and strong feet.

Most of the Broadbills are insectivorous, but the Green Broadbill (*Calypdomena viridis*) is an exception to the general rule, being almost entirely frugivorous.

The coloured plate renders a description of the adult male unnecessary, but it may be mentioned that the female differs in the absence of the black markings on the plumage, which is duller throughout. The nest is said to be an elongated bag-shaped structure of dead leaves and interwoven fibre suspended from a bough over water, the eggs being creamy white in colour and two to a clutch.

C. viridis occurs in Tenasserim, the Malay Peninsula, Sumatra, and Borneo. In the Malay Peninsula, according to Robinson, it is common in secondary and old jungle up to about 3,000 feet, going about in small parties of six or seven which keep well amongst the branches.

The specimen at the Zoological Gardens has moulted since its arrival, and seems to be thriving. Its brilliant plumage renders it a very striking bird, but it is very sluggish and apparently silent.

D. S-S.

NOTES ON THE 1929 SEASON

By the MARQUESS OF TAVISTOCK

The breeding season which is now drawing to a close has been a poor one, nothing new and interesting having materialized, while some of the old reliable breeding pairs have done less well than usual. The summer rate of death and sickness from enteritis and pneumonia has been more than ever depressing, no bird being too hardy or too thoroughly acclimatized to be proof against the combined malice of X and the June climate of Warblington ! The cock Guilding's Amazon, an old breeding hen Crimson-wing, mother of my Alexandra hybrid ; a breeding pair of Barrabands ; a cock Layard and a Sula Island King \times Crimson-wing hybrid are among the victims. Only a degree less tiresome is it when X gets his knife into a bird that has been through one moult in an outdoor aviary and seems acclimatized, with the result that it can only be kept in a cage in the birdroom and becomes dangerously ill every time you try to get it back in an aviary. Last spring I had a lovely pair of Derbyan Parrakeets which I had had out for eight months and which had never ailed since their arrival. In due course they came into breeding condition, and the chances of a medal looked rosy. Then early one morning I found the hen lying dead on the ground in a corner of the flight. Post mortem examination revealed no trace of injury, no sign of disease, and eggs were already well formed in her ovary. Later in the year I got a freshly imported hen, but in July the cock fell ill. When he had completely recovered I tried him in another aviary and he again got ill. If he has to be caged all winter he will, of course, be useless for breeding next spring. The same thing has happened with a cock Alexandra Parrakeet but as I have no mate for him it does not so much matter.

My old Grey Parrot, a former pet of the late Canon Dutton, has

once laid eggs in a cage. She is now in a small outdoor aviary and as, in May, she began scratching on the ground I gave her a log. She laid two eggs in it and incubated them steadily. When they were due to hatch I gave her a fertile Yellow-rump's egg. She was much excited when the young bird emerged, but injured it a day later, confirming previous experience that old maids among Parrots make bad foster-mothers. Soon afterwards she laid and incubated a second clutch of eggs and I then removed the nest. There is little doubt that Grey Parrots would be very easy to breed if cocks were less scarce and people less unwilling to give them a chance of nesting. The Lutino Blue-fronted Amazon once more disappointed me, or rather her mate did. This cock, when introduced to her nearly two years ago, tried hard to make himself agreeable. She, however, was persistently rude to him. He never forgave her, and ultimately turned so spiteful with her that I had to keep his wing partly cut. I hoped that time might heal the breach but it was no good. Sometimes he would get her to do his hair for him but he made it quite clear that this service was rendered in a strictly professional capacity and was not in any sense to be interpreted as a sign of affection: he would still turn on her without warning, and she was afraid of him. Finally I removed him, much to her relief and gave him away as a cage pet. I had another cock in reserve, but he was a spiritless creature, slow in moulting and much oppressed by the horse-play of the lively female with him. I relieved him of his boisterous partner, but he is one of those poor creatures who are born to trouble, for some enemy caught him climbing up the wire (he cannot yet fly) and bit the ends off some of his toes, since when he has not dared to show his head outside the shelter. I have found him a good home where considerate human friends will, I hope, make him forget his past sorrows, and I am promised another cock reputed to be well disposed towards matrimony.

Roseate Cockatoos were another failure. I have a breeding hen and a white bird supposed to be a cock. They never properly took to their nest, and an egg dropped from the perch was the only approach to breeding. The sex of the white specimen puzzles me, as its appearance and behaviour both provide conflicting evidence.

The cock Brown's Parrakeet, whose disgraceful brawls and well-

deserved punishment I recorded in "De gustibus," remained uncivil and unrepentant when put back in the spring with the wife he so nearly murdered. Had his wing not been cut he would have finished the job there and then and a second clipping was necessary some weeks later when the moult restored some of his flight feathers. However in July he at last reformed and at the time of writing he is again a model husband and a devoted father to three fat babies quickly growing in the nest. A more unlikely breeding pair did not exist in my collection. The hen is very old (I received her as an adult thirteen years ago), and she has never flown very well since the almost fatal mauling the cock gave her on being returned to her after a few days' separation last autumn. The cock mysteriously lost the use of two back toes on one foot early in the winter and he very nearly starved to death as a result of a bad injury to his tongue sustained in two days' incessant and wholly unnecessary fighting when given his liberty at Christmas. He was ill for weeks, and for a time was reduced to a skeleton.

The Turquoise Parrakeets I have dealt with in another article. They have hatched two out of five eggs and reared the young ones; the latter are much stronger than last year's nestling at the same age, and are rapidly improving, but one is not all that one could wish and I am looking forward to the time when a change will make it safe to allow them an aviary and healthy outdoor conditions. The old hen, it may be worth noting, has a few partly red feathers in her wing where the cock's bar would be. I have seen fertile hen Redrumps with a trace of red on the back and fertile hen Zebra Finches with an indication of the dark bib and chestnut cheek patches and I once had a Gouldian Finch in full male plumage that laid an egg.

The Black Cockatoos provide the last ray of hope of an exciting event, though the lateness of the season is all against it. For the first time in seventeen years one pair have actually mated and the hen, who has laid and incubated before, seems about to lay again. She was formerly the property of a Mrs. Anningson, who exhibited her with success at many shows in what is now the quite distant past! She is a magnificent specimen of the big race, *C. megalorhyncus*. When caged she laid regularly and she also laid and sat in a flight cage when she was being kept for me by Canon Dutton during

the war. Since being put into a big aviary she has only once looked like laying, and then changed her mind at the last moment. "MAX," her husband, I got from the late Mr. Carl Hagenbeck before the war and for a short time kept as a liberty bird at my old home. Unfortunately, later, while on deposit at the Zoological Gardens, he contracted the vice of feather plucking, which he has never since abandoned. As a Black Cockatoo will only eat hemp, sunflower, and monkey-nuts, it is impossible to modify its diet with a view to a cure. He is a Western bird, *C. stellatus*, and so is much smaller than his companion. His domestic interests have not in any way spoiled his temper, and he is as absurdly demonstrative as ever to his human friends. A new specimen I received recently, which is believed to be a young male, eats apples as greedily as any Parrot, which affords another instance of the strange way in which birds of the same species differ in their tastes. Not one of the thirteen other Black Cockatoos I have owned at different times would ever touch fruit. As tastes vary, so do temperaments. For example, I have had many breeding pairs of Redrumps, and all of them used to turn spiteful with their young very soon after they had flown. This year I got a new pair to try as liberty birds. They were an odd couple, and very wild; yet almost the day they were released they rushed to a hollow tree in a garden half a mile nearer the town, on the edge of the main road, and, with the precipitancy of Lovebirds, laid eggs and brought up two daughters, while motor-buses and traffic of all sorts thundered past them. Although their children have been flying quite two months, they still feed with them on the same tray in perfect harmony and good fellowship.

My Palm Cockatoos are much improved by a summer in the open air, and the cock, who was for some time a rather dull and anæmic-looking specimen, now has fine red cheeks and has recovered his spirits. Although his best friend could not call him beautiful, there is really a good deal to be said for *Microglossus aterrimus* as an aviary bird. His actions when in good health are as weird as his appearance, which, like that of a Hornbill, is almost too good to be true. He is easy to feed and, according to American aviculturists, capable of standing a good deal of cold. He is very gentle with other birds, less destructive than most Cockatoos and less noisy, his voice, which he does not use except

in moments of excitement or glee, resembling that of a kitchen-maid when similarly elated.

Last spring a long-cherished ambition was most unexpectedly gratified when I became the owner of a specimen of the largest and rarest of the true Parrots—the splendid Imperial Amazon. On first arrival I was not too happy about the prospects of life of my new treasure. He showed a certain weakness in getting on to the perch, and shelled large quantities of monkey-nuts without eating them, appearing more interested in the husk than in the kernel. However matters soon improved when I put some turf and branches in his cage. He chewed up and ate an almost incredible quantity of bark and twigs for which his system was evidently craving and afterwards his appetite became normal and he fed well on my usual seed mixture with a liberal allowance of apple. As he gained in strength he became much livelier, uttering a melancholy whistle which for a time I attributed to the Barnards in the same room and climbing about the cage looking incessantly for a way of escape. All the big Island Amazons are unsuited to cage life, but I never saw one who more obviously pined for greater liberty than the Imperial. When the weather permitted I turned him into one of the 24 ft. movable aviaries, where he has done well and is now more than half through the moult. For the benefit of those who are not familiar with a coloured plate of the species, I may say that the head, neck, and breast are dark lilac-purple, each feather having a blackish tip; the wings and back are green, the eye a fiery orange and the tail chocolate-purple tinged with green and tipped with lilac. My bird has a habit of erecting the feathers at the back of the head in a fashion which recalls the appearance of a Harpy Eagle. He now utters a great variety of calls; some natural; others apparently an imitation of those of his neighbours, while he also carries on long conversations in unintelligible gibberish in mimicry of the human voice. Though not exactly wild, he is rather nervous, and although he will sometimes display when spoken to, he hurries into the shelter if anyone enters the aviary. Like most Parrots, he greatly dislikes hot sun. Although his present quarters are large enough to keep him in good health, he still seems to wish for greater freedom and I hope one day to give him a big aviary where he can really use his wings.

A pair of Red-crowned Hanging Parrots are another addition to my collection. I had not intended to get any more of this genus until I moved to a healthier district, but when they were sent on approval I was tempted by their beauty and fine condition and so far they have done well. They are charming little mites and decidedly smaller than any Parrot-like bird I have ever seen alive. The general plumage is green, with a slight yellowish-brown wash on the mantle. The back is red, as also is a spot on the throat and a neat, round cap on the front of the crown. There is a touch of orange-red at the bend of the wing ; the beak is small and black, the iris whitish, and the legs carotly-yellow. The hen lacks the red on the crown, and her throat-spot is very small. I am, by the way, puzzled by these red-headed Hanging Parrots. I have a distinct recollection of seeing at the Zoo Sanatorium quite a big specimen (imported, I think, by Mr. Frost) which was supposed to be a Red-capped, but which was the size of an Abyssinian Lovebird or thereabouts ; my present pair are *far* smaller : can the Editor enlighten me ?

My birds are fed on Horlick's malted milk, Mellin's food, honey, and grapes, and seem to do well on the mixture. The use of Nestlé's milk as a substitute for Horlick's I have found most disastrous both for Hanging Parrots and small Lorikeets, resulting sooner or later in fatty degeneration of the kidneys or fits. The Red-crowns are reasonably tame and steady. Their cry is a gentle sibilant twittering, and the hen, as is usual with the genus, is very much the master, and decidedly disagreeable to her mate. In an aviary containing Hanging Parrots the grass must always be kept short, or they may try to bathe in the dew-laden herbage and get hopelessly tangled up and chilled. They are purely arboreal birds, and very clumsy on the ground, which they would never visit unless induced to do so by the lack of the leafy branches in which they are accustomed to perform their ablutions in a wild state.

Another interesting addition has been a Slatey-headed Parrakeet (*P. schisticeps*), kindly given me by Mr. Ezra. It is a great pity that this very beautiful and presumably hardy species, common over a wide area of northern India, is never imported. In appearance it resembles a rather large, pale Plum-headed Parrakeet, with the head leaden

instead of plum-coloured. I find that Indian field naturalists have libelled its voice, which they describe as harsh, just as they have unduly flattered the Malabar by calling its cries musical. The call of the Slatey-head is a pleasant musical "Tweet", very like that of the Plum-head. Talking of Malabars, I have discovered the interesting fact that the cock gets his full plumage with the first complete moult, and not, as is usual with Ringnecks, with the second. His beak undergoes a strange series of colour-changes—red when he leaves the nest; black a few months later, and back to red by his first spring. Young hens start with red beaks, and then change to black and remain so.

Small Finches at liberty, released for the first time, have stayed better than usual, a fact which I attribute in part to the covering of some of the seed dishes with "dish-covers" of inch-mesh netting, which allows them to feed in peace undisturbed by bigger English birds. Common, St. Helena, Orange-breasted, and Orange-cheeked Waxbills, Cordon Bleus, Fire Finches, Lavender Finches, Bib Finches, Zebra Finches, Avadavats, Silver-bills, Orange Weavers, and Rainbow Buntings are all to be seen in the garden, and seem thoroughly settled down.

Of Common Waxbills I had a nice little flock left from last year, when they bred. They were wintered in an aviary with a heated shelter and outside flight. I only lost one, and there are a good many still about, and more young are appearing. I had very bad luck with my Fire Finches, of which I bred quite a number last autumn. The hens in winter I shut up with the Common Waxbills, while the cocks were treated as day-liberty birds. In late May I had seven or eight hens in lovely condition and about the same number of cocks. When the nights as well as the days were warm I let out the hens and within a week all but one were picked up dead in the garden or in the aviary shelters, to which they still had access. Some miserable half-plucked new arrivals, fresh from the dealers, kept perfectly well, and are now breeding!

Disaster also overtook my liberty-bred Lavender Finches, of which I was very proud. One of the trap feeding trays which ought to have been closed at mid-day to force the small birds to enter the aviary shelters for the night, got out of shape, allowing the Lavender Finches

to enter and feed. They stayed out on a cold winter night, and next morning the ground outside the entrance to the aviary shelter was strewn with sad little corpses. They had struggled there in a chilled state at dawn, and died almost immediately and more than half the flock perished.

Bib Finches have done quite well as day-liberty birds in winter and at complete liberty in summer. A certain number stray, but enough remain to keep up the stock; they are nice little things and in spite of their sober plumage are much in evidence. They and their cousins the Silver-bills have an extraordinary habit of eating the dead buds on the elm pea-sticks, cut about six months ago.

A pair of Avadavats built a very conspicuous nest in a myrtle on the verandah close to the dining-room window. In spite of people constantly passing and the frequent use of the bush as a bicycle-rest by my children, the young were reared. A hen Cuban Finch has provided a curious example of the way in which despised and unvalued birds will survive and flourish. I bought her last August (1928) with some that I wanted to send to a friend abroad, but she was such a miserable specimen that I had to keep her. She was half-plucked; very lame, and bumble-footed and breathed as though she had chronic asthma. As the weather was hot, I let her have her liberty. From her infirmities she was stupidly tame and sat about day after day on the top of an aviary or in conspicuous places on the lawn. How she escaped a thousand deaths at the hand of cats, rats, owls, and wood-mice I cannot imagine. But she lived and improved, and by the time the cold weather came was in fair condition. Through the severe winter nothing ailed her, nor did prudence desert her, and she returned nightly to her safe and warm roost. When I left home in May I bade her, as I thought, farewell, for it was not to be expected that an unmated bird would stay through the summer. However, on my return in August, there she still was, and when I watched the Waxbills feeding yesterday evening the Cuban Finch did not fail to arrive for her dinner. She really deserves a husband, though no small bird as quarrelsome as the Cuban with its own species is well suited to liberty aviculture owing to the fighting that takes place when the birds are shut up on winter afternoons in the roosting shelter.

Superb Tanagers in an aviary got no further than carrying nesting material, though always in perfect condition. Purple Sunbirds, wintered in an outdoor aviary with a heated shelter, came into breeding condition and started to build. Then, one warm day in late May, without rhyme or reason, the hen died of pneumonia !

IN SEARCH OF THE IMPERIAL PARROT (I)

By SYDNEY PORTER

A matter of between four and five thousand miles away and a three weeks' journey from the shores of England lies the world's most incredible island. It is one of those places of which, when one enthusiastically describes it to a friend, one is conscious that, though they listen tolerantly, they take all one says with the proverbial grain of salt. Seen for the first time from the sea, one is struck by its sinister and awe-inspiring grandeur. Imagine an island about the same size and shape as the Isle of Man, with all the highest mountains of the British Isles crushed up and put upon it—though several of the peaks there are higher than those of our islands—rising sheer out of the sea, their feet resting in the water and their summits hidden by the clouds, the only place I know of where palm-trees thrive above the mists, striving to add a still greater height to the already great towering volcanic peaks. If you can imagine this and a hundred other things, then you have Dominica, the fairest and yet the least known of the Leeward Islands in the Caribbean Sea. Its visitors are few, but its hospitality is second to none in the world—perhaps the former is the reason for the latter !

It is perhaps appropriate that this wonderful island should be the home of one of the world's rarest birds, the Imperial Parrot (*Amazona imperialis*), which for some years has been thought to be nearly extinct ; and the chief reason for my visiting the island was to ascertain whether this singular bird was still alive. Fortunately for ornithologists, it is, but unless special care is taken its days are numbered.

For many years I had cherished in my mind a desire, or I might say a vague hope, that one day I might be able to find out something definite concerning the fate of either one or more of the rare and supposedly nearly extinct Parrots which inhabit the more remote West Indian

Islands. I did not think that such a desire would materialize, and it was only by a series of extraordinary coincidences that it eventually did, and with what luck I will relate later on.

When I set sail at the beginning of February, after several months of indifferent health, in search of sunshine in Jamaica, I had not the slightest intention of ever setting foot in the lovely island of Dominica, but it was in this latter country that I did eventually arrive, and not in the former. I will explain. Our boat which was bound for Barbados, the jumping off ground for passengers bound for the lesser known West Indian Islands, carried as passengers several residents of the Lesser Antilles, who were returning after a trip to Europe, and as I got to know them I questioned them about the rare Parrots from the respective islands. But few of them knew anything about the birds except the Parrot from St. Vincent, which they regarded more or less as a myth; but two days before landing at Barbados I was introduced to a charming lady who resided on Dominica, and who knew *Amazona imperialis* well. She said that it had always been very scarce, but now it was excessively rare. It used to be shot and eaten by the natives in fair quantities, and that even now it was occasionally shot and eaten by them (a fact which I later on proved to be only too true), and sometimes when a bird was slightly wounded in the wing or leg it was taken by the natives and sold. Such a specimen was brought to this lady's sister the year before last by a native, from whom she purchased it. I understand that it was wounded in the wing; in fact, the part from the elbow had been shot away. It was kept in a large cage, made out of a packing-case, but appeared sullen and morose. It was sold by her later at a good price to an American institution, of which she could not remember the name. I asked this lady whether it were possible to secure examples, but she said that there was no royal road to get them, and it was only by the rarest luck that the natives got hold of them, for there was no way of snaring them or procuring the young as the birds nest in the highest forest trees which are quite inaccessible, though upon one occasion she heard of a tree being felled which contained a nest of fully fledged youngsters. So upon this information I decided to alter all my arrangements, and come to the island and try my luck at either securing a specimen, or, at least, seeing these

magnificent birds in a state of freedom. Fortunately I was able to do both.

Upon landing I was introduced to the lady's brother, who, with true colonial hospitality at once offered to lend me his old home which was situated in the remote part of the island where these birds still exist ; in fact, it was the only house in the vicinity, and nearby lived the only hunter who knew and was familiar with the birds in their breeding haunts. Anyone else landing in the island in quest of the bird would have a very remote chance of meeting with the bird unless he had the same good luck that I had. Often people in the island will tell you that the bird still exists, but they don't know where. They will say when questioned : " Oh away in the forests," but as the island is covered with forest this does not imply very much. In fact, there are very few people in the island who have ever seen even a captured one, and I think that within recent years practically no white man has seen one wild except myself. The old hunter took me and after three hours of the roughest climbing I have ever done or hope to do again, brought me to the tree where the birds were.

As soon as I arrived at my destination after having spent several days in Roseau, the tiny but charming capital of the island, I naturally made inquiries regarding the whereabouts of the Parrots. The natives all knew of the birds, but I was told that I had come at the wrong time of the year, for the birds were already far away breeding in the deepest recesses of the mountain forest, in parts which were inaccessible to human beings. This sounded far from hopeful, but at night the old native hunter already mentioned turned up and told me that he was the only man in the district who really knew all about the " Ciceroo ", which is the native name for the bird. He informed me that if I liked to go for a two or three days' journey through the forests with him he would show me dozens of the birds, but if I only wanted to see one or two it would be only necessary to make a day's journey. Now finding that the natives of Dominica are singularly honest and truthful, differing in that respect very much from their cousins in Africa, I had no reason to doubt his word which in every way proved correct. I decided on the latter alternative, so on the second morning after we set out. I have undertaken some rough trekking in my time, but this

beat everything I have ever done. No wonder *Amazona imperialis* was thought to be extinct or at least nearly so. The way lay for the most part up and down almost perpendicular cliffs of about 1,000 feet high, and these were covered with the densest tropical vegetation. I think that we used our hands more than our feet: many times I nearly gave up, but just as my lungs seemed bursting and my strength almost gone we would reach the top and the descent would give me strength for the next climb. Sometimes we had to follow the course of a rushing mountain river, struggling to get from one boulder to another. On and on we pushed, sometimes there was a few minutes' rest when the guide was hacking out a pathway with his cutlass from the dense undergrowth. My face and hands were cut and bleeding from contact with the sharp razor-grass, and the going was made more difficult by the fact that the heavy red soil stuck to one's boots and made walking exceptionally trying.

The great forests were singularly destitute of animal life; large yellow and brown land crabs which hurried up the trees as we passed, and occasional specimens of Bouquet's Parrot (*Amazona bouqueti*) were the only signs of life. At last the guide informed me that we were in the district and sure enough in a few minutes we heard the loud ringing cry of *A. imperialis* and two birds flew out of a huge forest tree, circling round with almost motionless wings, looking very much like small eagles and very dark in colour when silhouetted against the sky. A little later on we came across another pair feeding upon a great fruit-bearing forest tree. I cannot describe the thrill as I lay upon my back on the hot steamy mould, gazing up at the birds through my binoculars; I realized that a long-desired wish had at last materialized, and I wondered how few white people had ever seen or perhaps ever would see these magnificent birds, undisturbed in the solitude of their wonderful forest home. Only a keen naturalist will understand my feelings when, after travelling thousands of miles, I beheld these creatures which had long been thought to be extinct. I felt somehow like Wallace did when he first saw and handled the King Bird of Paradise (*Cicinnurus regius*) as so well described in his wonderful book *The Malay Archipelago*. All my fatigue vanished and I did not feel the cuts and bruises.

The cock of the pair fed on the fruit, continually letting fall half-eaten ones which somewhat resembled a very dark purplish pomegranate. This fruit has a vile taste when eaten in the unripe state in which the birds appear to like it ; even if only touched by the tongue it leaves a horribly bitter and astringent taste in the mouth for a long time afterwards. When quite ripe the outer peel splits into five sections and opens out like a star, thus exposing the interior which looks like a small grape-fruit with the peel and skin removed ; also when quite ripe it loses some of its terribly astringent taste. Though I tried the bird which I later on secured with it, and also the Bouquet's Parrots, they all refused to touch it. This was exceedingly strange as it forms the main food of both birds in the wild state.

The hen of the pair I was watching (the guide said that it was the hen, though I could see no difference between the two) ran slowly up and down a bare branch of creeper which hung between the two trees, so that I got a splendid view of her. She struck me as being very dark purple, the head looked small and Vulture-like, and half the tail seemed to have been broken away. This may have been due to the fact that she was nesting.

My guide told me that two months previously he had a pair of these birds which he had shot. One, which was badly wounded, died in a few days, but the other one, being merely stunned, recovered and he kept it for several weeks, but there being no prospective buyer in the district (I believe I was the only visitor who had stayed for any length of time in that part for some years) and the bird being very fat, my black friend cut its throat and had it for the evening meal. I nearly said I wished it had choked him, but if it had done so I should never have seen *A. imperialis* in its wild state! Some weeks after this trip I was speaking to a native hunter and he said, "Law or no law, we shall always shoot the 'Ciceroo' when we can, we pay a licence for a gun and if we go hunting and find no wild pig or agouti and we see a 'Ciceroo' we just shoot it because we have no meat." I mentioned about keeping fowls as a constant supply of meat, but the answer was, "Fowls cost money to buy and we can always sell them, but we can't sell a 'Ciceroo'."

I falter before the task of describing to the reader something of

the utter grandeur of the deep, almost inaccessible forest-covered gorges and ravines which form the home of the Imperial Parrot. It requires an artist in words to paint a pen picture that will in the slightest degree convey anything of the magnificence of the mountain ranges of Dominica. I have seen a good many groups of wild and rugged mountain ranges in Europe and elsewhere, but none have ever appeared so impressive as those which form the home of the "Ciceroo". Nowhere do mountains rise so sheer or are the ravines so deep and precipitous. Sometimes the walls of the gorges rise perpendicularly for thousands of feet, covered by the densest tropical creepers and ferns of the most vivid emerald green. From the distance the island looks like a jagged emerald rising up out of the turquoise sea. The rainfall in some parts is as much as three hundred inches a year and this, combined with an average temperature of about 85° F., gives a wealth of tropical vegetation which can well be imagined. Giant palms and tree-ferns mix with the other vegetation in the struggle upwards towards the light. Here and there great forest giants lie prone, their great bulk almost hidden by the rank growth of mosses, etc. It is here, in some places impossible for man to penetrate, on the Atlantic slopes of the sinister volcanic peak, Morne Diablotin (Mountain of the Devil) that *A. imperialis* makes its home. Long may it hold its own.

Of course, the Imperial Parrot is rightly protected by law, but as a gentleman in the Administration said to me, it is absolutely impossible to enforce the law in such a district. The only laws known in those parts are the laws of Nature. But the bird is protected by Nature in such a way as no other creature in the world is, for I know of no living bird whose numbers are as small as those of *A. imperialis* and yet which has managed to maintain itself as this bird has. Its home is the most remote, the most inaccessible, and the approach the most dangerous that I know of. All this may sound rather ludicrous when the island is only about 15 miles by 30, but the position must be seen to be appreciated.

I believe that this species will not be exterminated for some years to come, that is if great care is taken and no one is allowed to collect an unlimited number of specimens, especially for museums, in the

United States. I am not speaking disparagingly of American institutions, but there is a tendency to stock the museums in the States with rare specimens, which is only natural, as most of the museums in Europe which have been established for a much longer time are already full. The species in the flesh is far more valuable to the coming generations than dried skins in cabinets, even though the birds live in inaccessible forests.

I regret to say that when they stray away from their natural home the birds are still shot by the native gunners now and then for food. This is a great shame, for I hear that the flesh of these birds is very tough and leathery. I was asked to sample the flesh of one of these birds, but even had I not been a vegetarian I should have refused. It is a great pity that they are eaten, for there is an abundance of food on the island, but the natives have no idea of the rarity of the species.

(To be concluded.)

SOME NOTES ON CAPTIVE BIRDS BREEDING IN THE GIZA ZOOLOGICAL GARDENS (EGYPT) DURING THE YEARS 1925-7

By MAJOR F. W. BORMAN, F.Z.S., M.B.O.U.

In the administration of a public Zoological Garden the needs for the successful breeding of birds must generally be subservient to the adequate exhibition of the various species. In this respect the Giza Zoological Gardens were no exception.

During the period under review an average of some 1,400 birds of 230 different forms was maintained in the aviaries and paddocks.

Most of the aviaries devoted to the smaller birds were large with a portion covered in and a service passage at the rear and contained a mixed population. Some had cemented pools with a constant supply of running water, others pools in which the water was changed from time to time. Shrubs and small trees, planted directly in the floor or in wooden tubs, were provided. There were ranges of smaller, movable aviaries for Parrots and pairs of Finches, etc., all in the open.

Two pairs of Beautiful Starlings (*Spreo pulcher*) reared several

broods, one of six was hatched on 22nd May. They nested two or three times between mid-April and September. The clutches never exceeded six eggs and four was the usual complement. The nests were built in boxes. These birds did not tolerate smaller species in their domain and, though excellent parents so long as their offspring were dependent upon them, preferred their room to their company when the young could fend for themselves.

A pair of Common Mynahs (*Acridotheres tristis*) hatched four young on 24th June from a nest built in a box.

By the end of January, Brown-naped Fire-Finches (*Lagonostica senegala brunneiceps*), African Waxbills (*Aidemosyne c. cantans*), Avadavats (*Sporaeginthus amandava*), Indian Silver-bills (*Uroloncha malabarica*), Cut-throats (*Amadina f. fasciata*), and Java Sparrows (*Munia oryzivora*) had eggs and later reared a few young. A pair of Red-crested Cardinals (*Paroaria cucullata*) on 3rd May had a nest of four eggs in a shrub. This nest was eventually destroyed. A second nest was built in a box, but no eggs were laid. A pair of Red-headed Cardinals (*Paroaria larvata*) built on a suspended platform of twigs. Four eggs were laid by 28th June, but were not hatched.

An unpaired Desert Eagle-Owl (*Bubo ascalaphus desertorum*) laid an egg on 22nd February and sat upon it unceasingly. It was removed on 15th March and two half-incubated eggs of the Egyptian Kite substituted. One of these she hatched twenty-six days later but appeared quite incapable of feeding her foster-child and it died within a week. The same bird laid an egg on 25th March of the year following.

No breeding successes were achieved with any of the Cockatoos or the larger members of the *Psittaci*, but nineteen young in 1925 and fifteen in 1926 were reared in an aviary containing some thirty adult Black-cheeked Lovebirds (*Agapornis nigrigenis*), while Budgerigars, both green and yellow varieties, bred freely.

The hen of a pair of Egyptian Coucals (*Centropus senegalensis aegyptius*) commenced to lay on 15th May and, between that date and 1st June, produced eight eggs. The first three were dropped on the ground and broken, but the subsequent ones were laid in a basket fastened to the branches of a small sont tree growing in the aviary. This receptacle the birds built about with twigs and lined with coarse grass. Both

sexes sat intermittently but, although pairing was seen to take place on several occasions, the eggs proved to be unfertile. In a state of nature this species builds a domed nest resembling that of the magpie. The eggs are a pure glossless white and measure 35 by 25 mm. These birds are most attractive both in appearance and in respect of their rippling series of "cuk" like notes uttered in a descending scale. The sexes are alike in plumage. They are dangerous to other birds, and should be given an aviary to themselves.

Of the doves, young were reared by the Red-eyed Turtle Dove (*Streptopelia semitorquata*), Dongola Dove (*Streptopelia decipiens*), Equatorial Palm-Dove (*Stigmatopelia s. senegalensis*), Egyptian Palm-Dove (*S. s. aegyptiaca*), and Cape Dove (*Oena capensis*).

A Senegal Sandgrouse (*Pterocles senegalensis*) laid one egg on 18th April, and a clutch of two on 24th and 26th May of the same year. No attempt was made to cover the eggs, i.e. to incubate them. They proved to be unfertile.

A pair of Saharan Stone-Curlews (*Burhinus oedicephalus saharae*) hatched young on 16th May and 24th June. Incubation period, 22–23 days.

A pair of King Reed Hens or Purple Coots (*Porphyrio madagascariensis*) reared broods of two and four young in 1926 and 1927, respectively. The earliest laying was 10th January, and the latest mid-July. The nest was built on a platform of sticks raised about a foot above the floor of the aviary. The eggs, similar in colouration to those of the Moorhen, have an average measurement of 54 by 36 mm. They were laid on alternate days and the greatest number in a clutch was five. Incubation lasted from 23 to 25 days, and both sexes shared in it.

Peafowl (*Pavo cristatus*) hatched three young on 28th August and other eggs were brought off under a foster-mother and in an incubator. Incubation period 25–27 days. An unmated Abyssinian Crested Francolin (*Francolinus sephaena spilogaster*) laid eggs on 28th and 29th April.

A Griffon Vulture (*Gyps f. fulvus*) produced an egg on 8th March, 1926, and, probably the same bird, on 28th February, 1927. She sat well on both occasions, but the eggs were unfertile. The measurement of one was 81 × 65 mm. A Northern Lappet-faced Vulture

(*Torgos tracheliotus*) laid on 15th February, she sat steadily for a few days and then broke the egg. Another was laid by this bird on 28th March of the same year, but was also broken. One egg measured 90×66 mm. A Black Vulture (*Ægyptius monachus*) laid on 28th March. She smashed the egg within a few hours. It measured 90×63 mm. It should be mentioned that all these particular vultures were caged with others of their own and different species. The two first-named forms seemed to be paired.

The climate of Egypt would not appear to be suitable for the breeding of many of the Anseres (Swans, Ducks and Geese). Two Mute Swans had nests of five and four eggs respectively in April, 1926, and seven and six in March, 1927, but no young were hatched. The eggs were usually laid on alternate days, but sometimes at longer intervals. A paired Summer Teal (*Æx sponsa*) laid five eggs at the latter end of May, but did not sit, and the eggs proved to be unfertile. In the Goose paddock a pair of Canada Geese (*Branta canadensis*) had a nest of five eggs in 1926, but failed to hatch them. In 1927 a nest in which the goose had laid three eggs by 2nd February was pirated by a semi-domestic bird. The Canadians were moved to another paddock, where seven eggs were produced towards the end of March. Two young were hatched and reared from this nest, while the semi-domestic Goose aforementioned hatched another two with some of her own. Rüppell's Spur-winged Geese (*Plectropterus gambensis*) reared four young in 1926, but nests of eleven and nine eggs in 1927 were all unfertile. An unpinioned Egyptian Goose (*Alopochen ægyptiacus*) mated to a pinioned gander hatched broods each year, but most of these young were destroyed by vermin. Ruddy Sheldrakes (*Casarca ferruginea*) reared two out of a hatch of three young. The nest was built in a hole on ground level in one of the artificial grottos in which the Gardens abound.

Three pairs of White Storks (*Ciconia alba*) in a paddock containing about a dozen birds of this species, had nests, built on the ground, early in May, 1926, and in mid-April, 1927. The nests held from three to five eggs. In 1926 one pair hatched five young, but these gradually disappeared within a few days and were undoubtedly eaten by the parents or the other Storks. Incubation period 25–27 days. In 1927 no young were hatched.

A pair of Marabou Storks (*Leptoptilus crumeniferus*) had a scrappy nest on the ground of their paddock. No eggs were laid, but the female bird sat on the nest for weeks on end.

A note that has no relation to any attempt at breeding may nevertheless be worth transcribing. Our *rara avis*—the Shoebill (*Balaniceps rex*)—of which three specimens were exhibited and had been inmates of the same paddock for a number of years past, never in my time showed the slightest interest, either sexual or combative, in one another. Their enclosure was a large one and each kept exclusively to a particular portion of it. What their sexes are will not, I expect, be ascertained until they leave the menagerie for the museum.

Of several adult pairs of North African Ostriches (*Struthio c. camelus*), only two nested in 1926. One pair hatched six young out of twenty eggs between April 21st–22nd. The other pair, ten out of twelve eggs between 10th and 12th May. Directly the young of this latter pair came out of their shells the female parent started to ill-treat them—picking them up in her beak, shaking them and dashing them to the ground. They were rescued as soon as possible, but two died from the effects of their injuries. The remainder were successfully reared by hand and, in their younger days, were most engaging in their tameness and habits. In 1927 three pairs went to nest. The first had a total of twenty-one eggs, from which nine young were hatched between 29th and 30th April. The hen of the second pair produced in all sixteen eggs, none of which hatched owing, I think, to the irregularity with which they were covered. The third, which did not have their first egg until the unusually late date of 4th April, had a total of twelve, and hatched eight of them between 4th and 6th June. It was the hen of this last-mentioned pair who had assaulted her young the previous year. She again likewise misbehaved herself and the young had to be immediately removed—this time without serious damage.

The incubation period of our Ostriches varied from 36 to 40 days from the laying of the last egg. Both sexes took a share in incubating; the cock generally sitting after dusk (probably an inherited habit as, in the desert, the male bird on the nest would be decidedly more conspicuous than his mate), the hen during daylight hours. There were, however, exceptions to this practice, the male being occasionally seen

covering the eggs during the day-time. Regular sitting commenced a day or two before the clutch was completed. During the period to which these notes refer, the earliest date of laying was 6th February in 1926, 19th January in 1927. Eggs, almost without exception, were laid on alternate days, with one pair generally between 4 and 4.30 in the afternoon. On several occasions, before laying was concluded, one hen was seen to scatter sand or light soil over her eggs, using her beak for the purpose, and this same bird—her mate was not noted to assist—during incubation scraped together a parapet some inches high around the eggs. The other breeding pairs, beyond making a slight initial “scrape”, made no such attempt at nest building.

DURAZZO,

15th August, 1929.

BREEDING THE CHILIAN TINAMOU

NOTHOPROCTA PERDICARIA

By W. SHORE-BAILY

In the spring of 1928, Chapman's with a large consignment of other birds, brought over five Tinamous, which I secured. On looking them over on their arrival I found that there was a good deal of difference amongst them, some having yellow and others flesh-coloured legs, whilst some were much richer buff on the breast and abdomen than the others. I was uncertain whether these differences were due to sex or age, or whether there were two different species, and am still uncertain as to this. A few days after arrival one of the birds was killed by a Francolin, and the body was sent to the British Museum. This bird had bright yellow legs and rich buff underparts. The British Museum authorities reported that they were unable to identify it. Later in the year two more died, and one of the bodies, this time a bird with flesh-coloured legs and pale underparts, was sent to the British Museum, who identified it as *N. perdicaria*. The birds nested several times last year, but owing to an invasion of rats and the disturbance in the aviary in dealing with them, were unable to incubate, so nothing happened. This season I removed them to another aviary and as I never heard the male calling I concluded that they must be

two females. However, early in July my man brought me the body of a Tinamou chick about a week old, that he had picked up under the table on which the Finches, etc., are fed. A careful search disclosed the nest containing one addled egg and shells of about five more. There was very heavy cover in the aviary and for a couple of weeks I saw no signs of the young birds, and then I spotted a single one, about the size of a Quail. It was quite alone, and apparently entirely independent of its parents. Since then I have occasionally got a glimpse of others and think that there are three altogether, although this is difficult to say, as I have never seen more than one at a time. At the time of writing they are about the size of Partridges, which they very much resemble when crouching upon the ground. *N. perdicaria* is very much the same size as *N. cinerascens*, but is not quite so long on the leg, and is a bit plumper in the body. Its upper parts are much richer in colour, and the breast and abdomen more rufous. The feathers on the head are not erectile, a very marked feature with *N. cinerascens*. The eggs cannot be distinguished from those of that species. I am not certain whether it had been bred in captivity before.

SOME AVIARY EXPERIENCES

By EVELYN SPRAWSON, M.C., M.R.C.S., F.Z.S.

An aviary experience which happened to us this year and the inference which we drew from it may, if the latter is correct, be of interest and a warning to others.

It concerned a pair of Rose-breasted Grosbeaks (*Hedymeles ludovicianus*) which had been wintered out of doors and were apparently anxious to go to nest; they had been seen pairing but no nest had been built. In order to help them, one afternoon we placed, in a bundle of twiggy branches which were already in the flight, a Black-birds' nest which had been deserted for 3 or 4 weeks although containing three eggs, which we removed.

The next morning the hen Grosbeak had laid in this nest, which she continued to do till she had laid three eggs, the parents sat well,

and in due course hatched two young. These they tended with exemplary care, but even so, though they grew rapidly and began to feather well for six days, first one and then the other ceased to progress, became very anæmic and died on the 8th and 9th days respectively.

On examining the dead young we found them to be infested each with some half dozen ticks of various sizes, up to $\frac{2}{3}$ the size of a large blow fly larva only relatively stouter. We immediately caught up the parent birds and searched them, but they were free; they almost immediately dropped into moult and now look particularly sleek and well.

We concluded that the Blackbird's nest was probably the source of the infection and that this was the probable reason of the parent Blackbirds' desertion of their nest and eggs, though of course it may have been due to another cause such as death of one of the Blackbirds. But the nest was, in the first place, well concealed and there is but little bird-killing vermin around here.

One amusing episode concerning this happening was that the original Blackbird's eggs were rather small ones, and as already mentioned, when the nest was put up in the aviary the eggs were removed; when I looked in the nest the next morning one's surprise (seeing that I had never seen the Grosbeak's egg before) may be imagined when I apparently saw one of the rather small Blackbird's eggs back in the nest; it was only after referring to several avicultural and other books that one found that the *Royal Natural History*, vol. 3, describes the Grosbeak's eggs as being "a light and rather pale green in colour, profusely speckled with dull reddish brown" that one realized that one was looking at the Grosbeak's egg and that one of the almost exactly similar Blackbird's eggs had not been replaced by way of a practical joke!

We shall not use nests already made by wild birds for this purpose again without baking them first. We have been fortunate in breeding Many-coloured Parrakeets (*Psephotus varius*) this year. Our two pairs both went to nest and each laid four fertile eggs; one pair, which went to nest a month before the other, experienced some rather sharp weather, and only hatched and reared one young one, the other pair hatched

and reared three young: net result, three cock and one hen young reared, and all beautifully fit and active.

A hen Blue-banded Parrakeet (*Neophema venusta*) most unfortunately fell sick and died after the pair had selected a nest, and a pair of Barnard's Parrakeets (*Barnardius barnardi*) were unfortunately so badly disturbed when on the point of nesting that they gave up and fell into moult.

Although we have for several years had fertile Many-colour eggs, this is the first time we have succeeded in hatching and rearing them, and we attribute the success to the prolonged cold spell in the early part of the year, which delayed any nesting operations for four or five weeks beyond their usual time, the first pair going to nest about 20th April. We shall therefore withhold their nests till about this date another time, as a few cold days seems so disastrous to the lives of the embryo chicks. The nest-boxes were placed in the open flight.

CORRESPONDENCE

CAROLINA AND MANDARIN DUCKS

SIR,—In my letter of July *re* Carolina and Mandarin, I did not intend that it should imply that Mandarin would not naturalize nor naturalize better and easier than Carolina; far from that, for I think they would, and no Duck could look more beautiful in the parks of London than the Mandarin.

I wished only to emphasize that our stock of Mandarins are obviously hardier from the continual infusion of "wild" blood from imported drakes, whereas the Carolina, not being imported, our stock in Europe generally must be considerably inbred and therefore cannot have had the same chance of proving their worth as the Mandarin have had. We find here that the Carolina lay far more eggs than the Mandarin, but the fertility is poor.

J. C. LAIDLAY.

HYBRID GUINEAFOWL

SIR,—It may be worth recording that this season we have reared a number of young Guineafowl bred from a pure Mitre cock paired with a hen who had for parents on the one side Vulturine \times Mitre and on the other side Mitre \times Domestic Guineafowl. These young are very hardy and appear to be growing much faster than the Common Domestic Guineafowl do. They are rather wild, and when frightened even at three weeks old flew up into the branches of the nearest trees.

J. C. LAIDLAY.

SOME AVIARY NOTES AND QUERIES

SIR,—What appears to me somewhat extraordinary has occurred in one of my aviaries in which were forty-six small birds. On 6th ult. I lost one Longtailed and one Heck's Grassfinch, on 7th, 9th and 12th, another Heck's each day, total five in seven days. *Post mortem* by Mr. Hicks of two of them revealed catarrhal enteritis and undigested seed and grit had passed into the intestines; there were nine of these birds in this aviary, of which three were last year's birds and three this, and I am of opinion that only one of this year's birds died. What seems so extraordinary to me is that no other bird had died in this aviary since March except a hen Cordon Bleu on 2nd ult. Can any of our readers suggest an explanation why this one species should have thus suffered? The four remaining appear well *at present*, but the others showed no signs of sickness beforehand, but were found dead or dying.

Nothing good worth recording has taken place. Beech's Jays nested, laid one unfertile egg on which the hen sat assiduously, and then the cock died! Blue Budgerigars, Zebra Finches, White Javas, Bengalese, Longtailed Grassfinches and Diamond Doves have all nested and been more *or less* successful so far. White-Capped Starlings have showed signs of nesting, Yellow-wattled Lapwings were seen to mate on several occasions, but no nest. Black-bellied Sandgrouse have made no attempt nor yet Virginian Cardinals or Fischer's Lovebirds; all these are pretty certain pairs and well established and healthy and greater things might have been expected of them!

Californian Quail hatched eleven out of fifteen eggs; three of these

went off one by one, the other eight being now quite half grown. One might suppose that these birds could be easily established at large and make good sporting birds, being strong fliers. Moreover, as they go to perch they should be fairly safe from foxes and other vermin. I have never heard of this being done, and should be very interested to hear from any of our members who have attempted it, with a view to doing so myself next year.

JOHN S. REEVE.

[Many attempts to naturalize the Californian Quail in this country have been made, but none successfully so far as we know, though it has done well in several other countries.—ED.]

PARRAKEET NOTES

SIR,—Having the misfortune to lose both the cock and hen of a pair of Barrabands who had a nest I gave the eggs to my Sula Island King Parrakeet who was incubating two of her own. With the assistance of her Crimson-winged husband she has hatched and reared two Barrabands and one hybrid. The Crimson-wing, like most of his kind, is an indifferent husband but a good father, remaining gentle and forbearing with his children long after they are able to feed themselves. This year, however, I have had to take him away, as, while remaining as amiable as usual to his own hybrid child he became spiteful with the young Barrabands soon after they had flown. He knew the difference perfectly well, and was not to be imposed on, showing that a Parrakeet's intelligence in such matters is higher than that of the corvine birds which are victimized by certain foreign Cuckoos.

A three-year-old elder brother of the hybrid just mentioned is now moulting into adult plumage and is showing a quantity of light yellow-green feathers on each wing. It is curious that by crossing a Parrakeet with a red wing-bar with one with no wing-bar at all you should produce offspring with a pale yellow-green wing-bar rather like that of the other species of Kings. The wing of a Sula Island of either sex is uniform dark green.

TAVISTOCK.

A MAIMED STANLEY PARRAKEET

SIR,—Shortly after the accident to my hen Stanley Parrakeet reported in the July number, this bird laid another clutch of four eggs, but they were laid so irregularly over a period of 16 days that I scarcely expected any results from them.

One of them hatched, however, on 3rd August, but the chick died on the following day. The hen was evidently unable to feed it for its crop was quite empty. Her upper mandible has not grown again, and she will, I am afraid, be useless for further breeding. In fact, I do not expect her to survive more than a few days now, for it is unlikely that the cock will continue to feed her.

I removed the remaining three eggs on 11th August and all were fertile and in various stages of incubation as I expected.

I am very surprised the beak has not been reproduced as I afterwards found several young Budgerigars with broken beaks, evidently from the same cause, and in each case the injury is gradually growing out.

C. BEST.

QUAIL FINCHES

SIR,—The grass in my aviary had grown long. I noticed three very small tunnels which appeared to run to one spot. My curiosity overcame me and in a weak moment I tenderly opened the grass at the spot where the tunnels appeared to meet. Yes, there was the nest with five eggs, a miniature Skylark's nest. Three weeks later I looked again: eggs and nest had vanished.

ARTHUR LEWIS.

LUTINO BARNARD'S PARRAKEETS

SIR,—As of recent years the colour variations of Parrakeets have aroused a good deal of interest, I append the following from *The Emu*, vol. 27, part 2, October, 1927, page 112, lest the record should pass unnoticed in British aviculture.

The Rev. Clarence L. Lang, in an article entitled "A Trip to the Mallee", writes concerning Barnard's Parrakeet (*Barnardius barnardi*): "I saw a pair of young albinos of this species which a woodcutter had taken from a nest; they were of a pale-yellow colour, with pink feet and red eyes."

EVELYN SPRAWSON.

MOVABLE AVIARIES

SIR,—I detect in portions of Captain Stokes' article a kindly tilt at some of my methods of aviculture which impels me to reply, I hope, in the same spirit (and *not* in that of the three Robins who at the moment of writing are settling a territorial dispute in front of my window)!

As Captain Stokes admits, it is not easy to house Parrot-like birds artistically on account of their destructive propensities towards growing shrubs. My movable aviaries are, I admit, very inartistic because I like to keep and study and breed the maximum number of attractive species under the most hygienic conditions. But if anyone prefers a few birds artistically housed to a larger number in aviaries without "frills", there is little reason why provided it has a good solid base for moving, a movable aviary should not be as nicely-proportioned as a fixed one and as pretty from an architectural standpoint. Certainly I think that my movable aviaries with fresh green grass and wild flowers covering the entire floor of the flight are quite as pleasant to the eye as any of the fixed Parrakeet aviaries of my friends that I have seen, with their bare patches of earth, rank tufts of sparse grass, and half-chewed branches. With regard to the use of movable aviaries for Tanagers and Sunbirds, there is no reason why in summer a movable aviary for these birds should not be a very pretty spectacle indeed. Before the aviary is moved on to its summer site the turf can be partially removed and when the aviary is in position some loam can be thrown down on top of the wire, and a variety of those annual climbing and flowering plants put in which are able to resist the bad effects of "drip". Shrubs in tubs and pots, artistically concealed with earth, foliage, movable rockwork, etc., can also be added.

If you can keep your birds in perfect condition for the maximum number of years in fixed, naturally-planted aviaries by all means do so, even though you may have to make some sacrifice in breeding, but I am most strongly of opinion that a perfect bird of any species in a movable aviary is a pleasanter spectacle than an imperfect one in the loveliest setting that art can devise—if you *have* to choose between the two. I am also convinced that the person who simply to gratify his eye for a brief period, shortens the lives of his stock and increases their liability to disease and injury by spiteful companions is no true bird lover, though he may in a certain sense be a true artist.

Lest it might be thought that all the attractions of a setting of tree and flower are divorced from aviculture at Warblington I would add that movable aviaries, in addition to being best for systematic breeding, also make the best base for liberty aviculture which shows off the beauty of your foreign birds to better advantage than even the most tasteful of aviaries. Waxbills and other little Finches may look nice in a naturally-planted aviary, but they look even nicer free among your verandah roses, or hopping on your garden path, or sitting among the sweet peas. A cock Weaver may be a bright bit of colour anywhere, but you need to see him flit like a ball of fire across a pond and settle on the branches that overhang the opposite bank to enjoy him at his best.

A cock Broadtailed Parrakeet rising from lawn or meadow and moving with graceful dipping flight and into a near-by tree looks lovelier than he ever can in confinement. A King or Crimson-wing is shorn of half his beauty when he does not show his colours in the air against a background of sky or foliage. A young Barraband or Rock-peplar in an aviary is just an ordinary greenish Parrakeet with a long tail no more interesting than a hen Ringneck ; at liberty it is a poem of speed and grace that makes one hold one's breath with wonder. The question might be asked, "What has all this got to do with movable aviaries ? Could you not have birds at liberty just as well if the aviaries were fixed and tastefully planted ?" The answer is "No !" Most of the Finches that beautify your garden in the summer have to be wholly or partially confined in the cold weather, and if the soil of the aviaries is sour, the number of healthy birds left for release

on the return of spring is likely to be small. With Parrakeets the advantages of movable aviaries are even greater. The average person who has not a big estate on which he can risk turning out birds in couples, must rely for his display on the cocks of breeding pairs, and on young birds of the year. On stale ground your cocks will not live very long, nor be available for release for many successive winters, while the output of young from Polyteline Parrakeets and their near allies—the best kind of young birds for a liberty display—is likely to be small owing to a high percentage of infertile eggs. Movable aviaries also lend themselves to convenient arranging so that liberty birds do not interfere with each other. If you have a range of fixed aviaries with a pair of Rosellas, a pair of Pennants, and a breeding pair of Barrabands in adjoining compartments you may find things in a nice mess once you start letting birds out. The cock Rosella and the cock Pennant may engage in a furious and fatal conflict, urged on by the proximity of their wives and homes. If you shut one up and let out the cock Barraband, the latter will be chivvied away every time he comes down to see his wife or tries to enter the feeding and roosting aviary you must provide to protect him from owls. If his children are let out they too will be persecuted by the ill-natured Broadtail who may make matters worse by himself entering the roosting aviary attracted by the food left in view of the young birds when they are being taught to come home at night. But move the aviaries some fifty yards apart, and then there will be little bother and no serious fighting and all can be out together.

TAVISTOCK.

SILVERBILLS BREEDING AT LIBERTY

SIR,—I have been successful in breeding the Silverbill at liberty for the first time. In May, I released eight of these birds in the garden and when I returned in August, a certain number were still to be seen—at least one pair and an odd bird which consorted with the Bib Finches. From the fact that the pair or pairs were always together it was evident that either they were not breeding or had young nearly full fledged, and in no need of brooding. The latter proved to be the case, for one

afternoon four strong youngsters followed their parents to the feeding tray.

Having little experience with the species and its allies, I was under the impression that the sexes of the Silverbill are almost indistinguishable. I was therefore rather surprised to find that with my birds at any rate the cock is not only paler than the hen, but also very much larger. I do not find that the St. Helena Waxbill is at all the amiable bird that some writers declare. For a Waxbill it seems to be decidedly spiteful and only a little less ill-tempered than the Violet-ear.

TAVISTOCK.

PACKET PARROT FOOD

SIR,—Why is it, I wonder, that all the packet Parrot foods on the market appear to be unsuited to form the staple diet of any Parrot-like bird except a Black Cockatoo, which not one person in ten thousand is likely to keep? I have examined Parrot mixtures made by three of the leading firms dealing in bird foods and find them all much alike in that they consist almost entirely of sunflower, safflower, and hemp with a proportion of useless extras such as dry maize, wheat, dari, and pumpkin seeds, which no normal Parrot ever touches. Plain, wholesome seed like canary is conspicuous by its entire absence. Of course, quite a number of commonly imported Parrots, Parrakeets, and Cockatoos have constitutions strong enough to resist the effects of unlimited hemp and sunflower, but a considerable percentage sooner or later fall victims to liver trouble and feather-plucking, the popular African Grey being more easily affected than the Amazons. Why cannot the seed merchants sell as “Parrot Food” a mixture which suits *all* individuals of the commonly imported species—Greys, Amazons, Ringnecks, Roseate, and Sulphur-crested Cockatoos, and the larger Australian Broadtails? On a mixture of one part canary, one part white millet, one part oats, one part sunflower, half part hemp, and one part peanuts, I have got practically all the above-mentioned species into show and breeding condition and I have never had a case of digestive trouble, malnutrition, or feather-plucking.

There seems to be some kind of interest at work to secure the

continuance of the sale of unsuitable "Parrot Foods", as a letter I wrote to a paper dealing with bird-keeping was not published.

One firm told me that customers complained that they were not getting value for their money if a proportion of small seeds was included in their Parrot mixture. Such fools who assess the value of a bird food by the size of the ingredients should go the whole hog and feed their Parrots on coconuts and their finches on broad beans, and it is a pity if they are really sufficiently numerous to hinder a reform so simple and so badly needed.

TAVISTOCK.

VIRGINIAN EAGLE OWLS BREEDING IN CAPTIVITY

SIR,—I have just been reading in Borrer's *Birds of Sussex* the Owls which were kept by a former Duke of Norfolk in the keep of Arundel Castle were Virginian Eagle Owls, a present from North America, and he says that they only lay usually one egg in a season, but in 1859 one bird laid three eggs which produced three fine young, which grew to maturity.

If the identification is correct this species has been bred in England as long ago as 1859, and that is not necessarily the first time they bred at Arundel.

H. L. SICH.

THE STORY OF A PIGEON

SIR,—Since writing the story of a Pigeon in the June MAGAZINE, I should like to add a further note. For after I had written that a Cairn puppy has become a member of the household, and though he is very good with my Parrots, even sitting on the same chair, and allowing one of them to comb him all over, he will not tolerate the sight of a Pigeon. He seems to think they must be on a par with cats, rats, and the like, to be chased from the house at all cost. Consequently, instead of being able to have the tray *inside* my room for the Pigeon to feed on, it now has to be on the window-sill. This evidently attracted the attention of a pair of Wood Pigeons, who now come all day long to

feed. They are certainly very handsome birds, and make the domestic variety look very small and commonplace. I quite agree with Lord Grey in his book *The Charm of Birds*, where he says the Wood Pigeon has "a look of perpetual astonishment". This, I think, is accounted for by the black pupil not being set quite in the middle of the yellow iris, but a little to one side, which gives this odd effect. I find these birds very much tamer than the common Pigeon for they will allow me to stand right up to them, within three or four inches. Another thing that has struck me is the silence of their wings. They seem to glide off the window-sill without a sound, whereas the Common Pigeon makes quite a fluster when he flies away. To-day (18th July), as I write, a third Wood Pigeon has arrived, a cock bird, and he promptly had a scrap with the first cock. I fear this is hardly avicultural, but the taming of wild birds has a fascination and charm all its own.

E. MAUD KNOBEL.

THE PEACE PIGEON AND SOME OTHERS

SIR,—Miss Knobel's recent interesting note on her Pigeon friend reminds me to put on record the following remarkable episode before I forget it—I have already forgotten exact dates. Some time before the Armistice—a matter of weeks so far as I can remember—a white Homer appeared at the bottom of Tottenham Court Road, and haunted this neighbourhood till the Armistice was declared, when it disappeared ; in a day or two, if not on the very day. It was always alone, and used to rest on a coping at first-floor level, above the fruit stall which was there at the time and for years after. The fruit stall people fed it, and I always meant to ask them about the exact dates, but put it off till too late. This is the only white Homer I have ever seen, but a peculiar silver-grey one with no markings appeared in the neighbourhood of Primrose Hill either during or shortly after the war, and stayed there for some time. It evidently found a mate among the Street Pigeons for a young Silver-grey Street Pigeon appeared after a time. A heavily-wattled Dragoon turned out by Green's people at Covent Garden before the war also found a Street Pigeon mate, but I saw no cross-bred young. I saw a statement in a scientific journal some time

back to the effect that the London Street Pigeons were rapidly reverting to the Blue Rock. I have seen no evidence of this during a quarter of a century's observation ; they have always been like Blue Rocks in form, and the proportion of Blues has not increased to my knowledge. It is a pity that when the birds were recently thinned out no attempt apparently was made to eliminate the off-colours and make the stock true Blue. Some such elimination has evidently taken place with the park wild Ducks, which were a very mongrel lot in the nineties, while now they are fairly true to type. Here there was probably some Black East Indian and White Call-duck inter-mixture, but in the case of the Street Pigeons I doubt if the variety of colour is due to crossing so much as to spontaneous variation ; they are the old-fashioned "dove-cot" Pigeons rather than the result of mixtures of breeds, of which only the Homer appears to be able to succeed in the streets.

F. FINN.

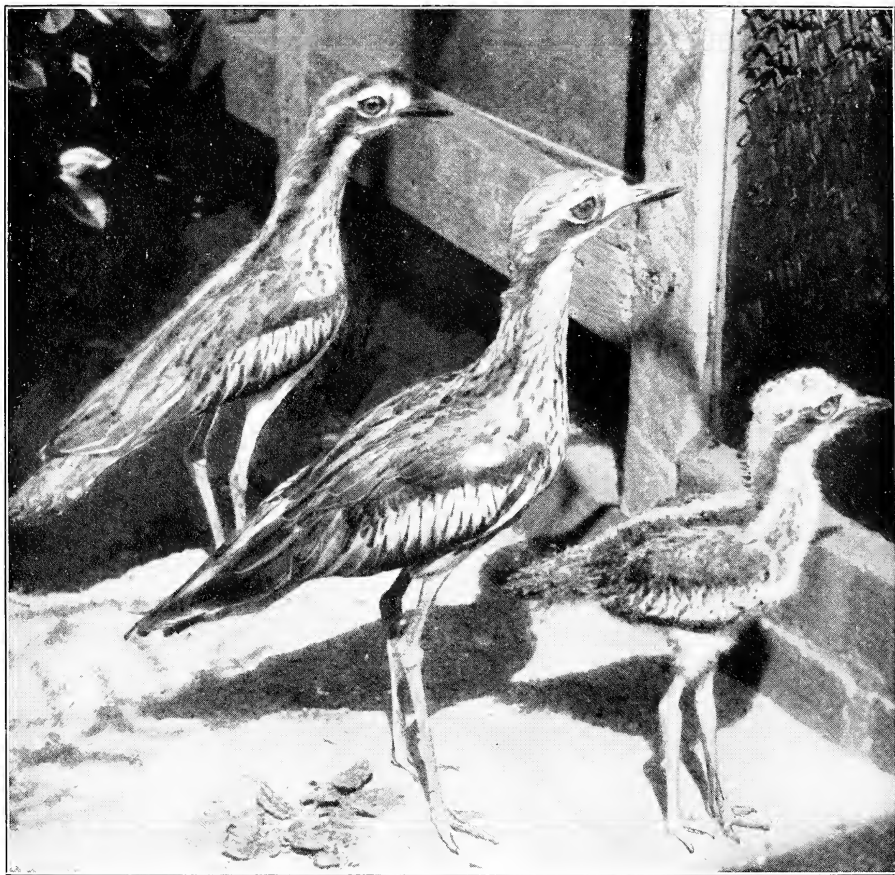
AVICULTURAL NOTES

By THE EDITOR

The Primley Zoological Gardens have been greatly improved since I last visited them two years ago. The lake, which was then being formed, is now not only finished, but the vegetation on the islands and surrounding ground has so grown up as to form a very beautiful feature of the Gardens. There are many Waterfowl on the lake, and Wild Ducks visit it frequently.

New buildings have sprung up in all directions, and the number of aviaries is colossal, and the collection of birds in them extremely fine. One meets rarities at every turn, and is struck by their splendid condition. The collection is certainly a feast for the aviculturist, and the ornithologist will meet with birds that are rarities even in museum collections.

There have been some interesting breeding results this year at Primley, foremost amongst these being the successful rearing of a young Australian Thicknee or Stone-Curlew (*Burhinus grallarius*).



D. Seth-Smith.

AUSTRALIAN STONE CURLEW.
PARENTS AND YOUNG IN MR. WHITLEY'S COLLECTION, SEPTEMBER, 1929.

To face p. 265.]

When I saw the young bird it was approaching the size of its parents, and quite capable of looking after itself, although its parents were still taking the greatest care of it. This is, I feel sure, the first time this species has bred in this country, though it appears to have been bred in captivity in Australia (AVICULTURAL MAGAZINE, 1925, p. 50).

Another success at Primley has been the hatching and rearing of a young Lort's Roller (*Coracias caudatus lorti*) and still another, the breeding of the Sooty Rail (*Limnopardalis rytirhynchus*) but this bred also at Primley last year. I hope we may soon have full accounts of these successes from Mr. Whitley himself.

Several specimens of the Blue Crossoptilon (*Crossoptilon auritum*) from western China have recently been sent to Europe by Mr. Alex. Hampe, who has generously presented one example to the Zoological Society, the first to be exhibited in the collection.

There are also to be seen at the Zoo just now a pair of Purple-throated Cotingas (*Cotinga cayana*) and examples of the Superb Manakin (*Chiroxiphia pareola*), both species being exhibited for the first time and forming part of a valuable collection of Brazilian birds presented by Mr. J. Spedan Lewis.

It is sad to have to relate that Mr. Spedan Lewis is for the time being disposing of his splendid collection of birds with the exception of his pheasants. Lists of the specimens and conditions of sale have been prepared, and will be sent to members of the Avicultural Society on application being made to Miss Chawner, Thatched Holme, Wargrave, Berks.

Lord Rothschild writes that his Sarus Cranes have successfully hatched two young ones, now (13th September) about three weeks old and doing well. The male bird ate the first two eggs laid, but sat, alternately with the female, for four weeks and three days on the second pair of eggs which hatched.

COLOUR BREEDING IN BUDGERIGARS

Now that the extravagant prices at one time asked for the colour varieties of Budgerigars have been reduced to a reasonable level those who are interested in these fascinating Parrakeets for their own sakes rather than for the money that can be derived from them, are showing a real desire to study scientifically the question of breeding them on the lines which Mendel discovered as being the laws of heredity, and by which can be calculated, within a comparatively small margin of error, the results which may be expected from any given matings of colour.

To thoroughly understand the question of colour breeding involves an amount of very careful experimental work as well as the thorough mastering of the theory, and those who, in this country, would wish to succeed will be deeply grateful to those scientists, Dr. Duncker and Konsul General Crewer of Bremen, who have not only mastered the theory of the subject from A to Z, but have carried out exhaustive experiments to test this.

The results of their experiments and conclusions have from time to time been published in the *Budgerigar Bulletin*, but in order to save breeders the trouble of searching through numerous papers a booklet has been produced by Dr. H. Duncker and published by the Budgerigar Club at the very reasonable price of 2s. 8d., which will be found to be invaluable to those who would wish to take up the scientific breeding of the rarer colour varieties. This booklet, which we strongly advise any Budgerigar enthusiast to obtain, contains in addition to an enormous amount of information, a set of eight well-executed coloured figures of the various varieties of colours that can now be produced in this one species.

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The charge for Members' advertisements is ONE PENNY PER WORD, and no advertisement must exceed thirty-six words, name and address included. Payment must accompany the advertisement, which must be sent on or before the 20th of the month to MR. T. H. NEWMAN, "VERULAM," FORTY LANE, WEMBLEY PARK, MIDDLESEX. All members of the Society are entitled to use this column.

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PAIR Australian Bare-eyed Cockatoos, bred in Holland; two pairs Abyssinian Blue-winged Geese, young birds:—F. E. Blaauw, Gooilust, 's Graveland, Holland.

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ADULT male Cereopsis Goose, male Manchurian Crane:—F. E. Blaauw, Gooilust, 's Graveland, Holland.

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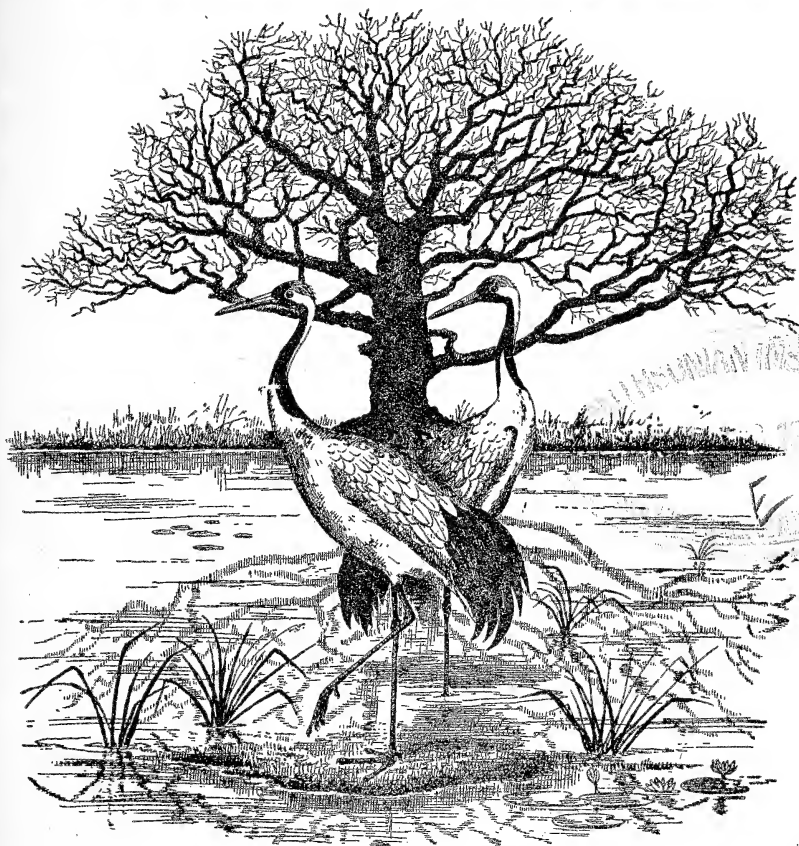
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THE Avicultural Magazine



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THE AVICULTURAL SOCIETY.

FOUNDED 1894

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The Subscription to the Avicultural Society is £1 per annum, due on the 1st of January in each year, and is payable in advance. The entrance fee is 10/0. The *Avicultural Magazine* is sent free to members monthly. Members joining at any time during the year are entitled to the back numbers for the current year, on the payment of entrance fee and subscription.

ALL SUBSCRIPTIONS SHOULD BE SENT TO THE HONORARY SECRETARY AND TREASURER, MISS KNOBEL, 32 Tavistock Square, London, W.C.1.

All Queries respecting Birds (except post-mortem cases) and all other correspondence should be sent to the Hon. Secretary, at the above address. Any change of address should be notified to her.

POST-MORTEM EXAMINATIONS.

Rule 1.—A short account of the illness should accompany the specimen. All birds to be sent as fresh as possible to Mr. C. H. HICKS, The Prosectorium, The Zoological Society of London, Regent's Park, London, N.W. 8.

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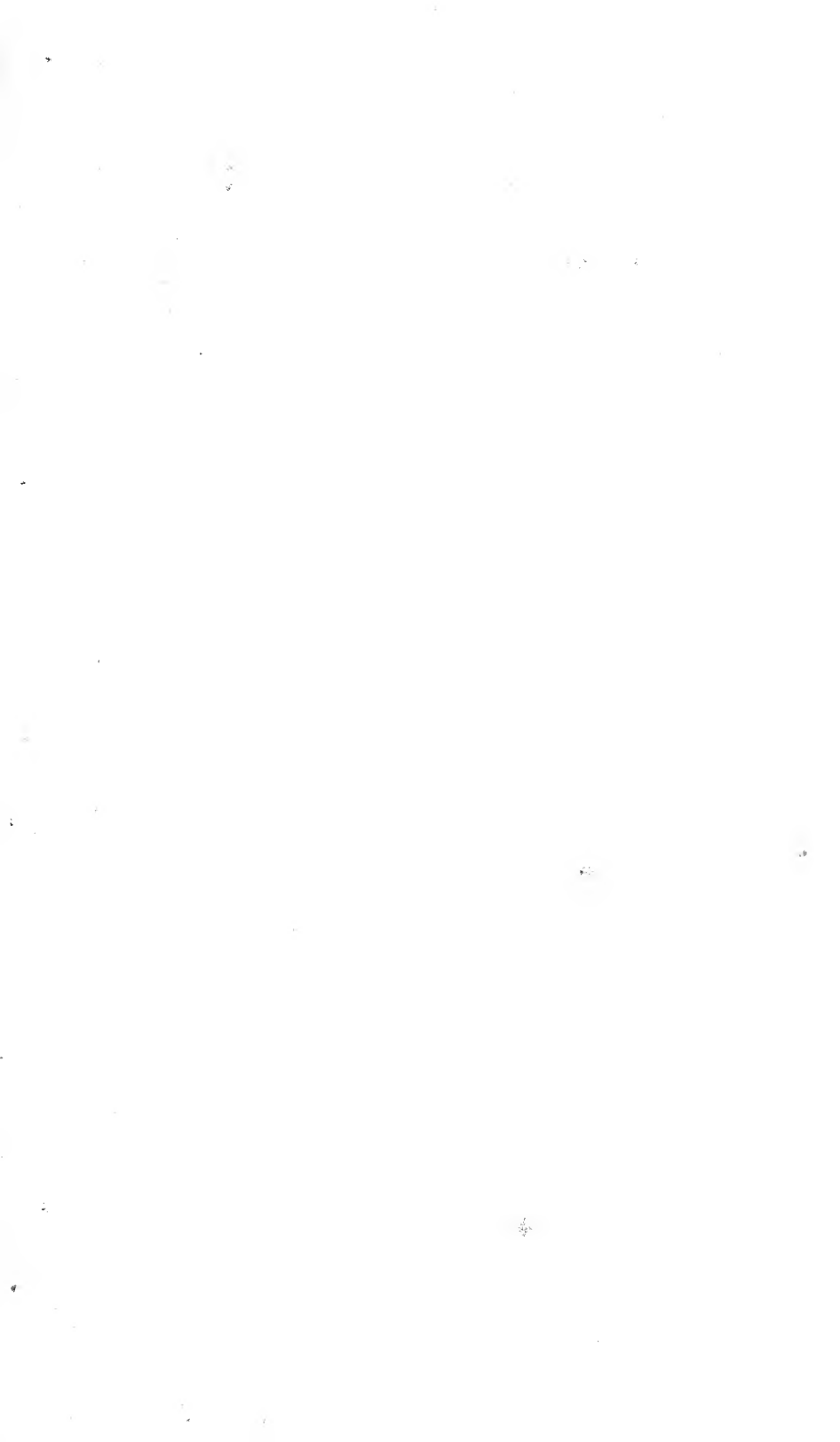
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MR. D. SETH-SMITH,
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Regent's Park, London, N.W.8.





[Photo, D. Seth-Smith.

IMPERIAL PARROT (*Amazona imperialis*).

To face p. 267.]

THE AVICULTURAL MAGAZINE

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FOR THE STUDY OF
FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

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IN SEARCH OF THE IMPERIAL PARROT (II)

By SYDNEY PORTER

(Concluded from page 246)

I paid a visit to a small shack belonging to the lady who so kindly sponsored me during my stay on the island. It was situated in the high mountains about 8 or 9 miles from Roseau on the leeward side of the island. While there I met a cultured young man of colour and during our conversation I mentioned about the "Ciceroo" and asked him whether he knew anything about it. To my surprise he gave me a rather interesting piece of information. He stated that just after the terrible hurricane of the autumn of 1928 when great damage was done in Dominica, a flock of these birds numbering from one to two hundred, which he thought was the entire population of this species, appeared in the valley where he lived, apparently seeking food owing to all their own food being destroyed. The flock stayed for a short time and then broke up into small parties and dispersed in different directions, but not before ten had been shot and eaten.

I was able to get information upon which I could account for over thirty-eight birds being killed and captured during the last three months of 1928 and during the first two months of 1929. This includes twenty birds killed by two men, including the ten mentioned above. Of course, it must be accounted a very exceptional year, for the birds were driven out of their haunts by the hurricane, but thirty-eight birds out of a

total of less than two hundred is a very heavy toll, and if the killing were to go on at this rate the birds would stand very little chance, as they are slow breeders. The natives say that they only lay one egg, but they really don't know much on this point. I am sure that the birds have no natural enemies except man. Only two escaped with their lives, my own bird and another which is also in England but I cannot trace where.¹ Several birds would have escaped the death penalty had there been prospective buyers on the spot.

Realizing the futility of trying to find these birds and study them in their haunts and get back in the day, I made arrangements to make a several days' trek right up into the heart of the mountain forests and camp each night.

This trip will stand out in my mind as the most arduous piece of trekking or mountain climbing I have ever done or hope to do again, but we stormed the well-nigh impregnable stronghold of *A. imperialis*, with what tragic results I will relate later on.

The way lay for the most part over much of the same ground covered by our previous excursion, but we pushed on over seemingly impossible mountains, up and down deep ravines and gorges, across deep and fast-flowing rivers (Dominica is said to have 365 rivers, a fact which no one seems to be able to prove or disprove). It rained for the first few hours as it only can rain in the tropics, and we were consequently soaked before we had gone very far, but that did not deter us but it made the going very much worse, for my boots got horribly caked up with the sticky mud and I could hardly lift my feet, but this disadvantage disappeared as we advanced into the forests.

At last, after hours and hours of struggling up and down the mountains, I felt that I could go no further so I told my guide to camp for the night; but he shook his head and said that we were not yet in the home of the "Ciceroo" and that there were many decaying trees about which might fall down at any minute and as if to verify this two decaying forest giants crashed to the ground very shortly afterwards; so on and on we went where I am sure very few white people have been before. At last, nearly dead with the heat, fatigue, and mosquito bites, we arrived in a gorge of unsurpassing beauty. Seldom

¹ I hear that this bird now belongs to a member of the Society.

is it given to the eyes of civilized man to see a scene like that. On either hand towered mighty cliffs covered with rank and luxuriant growth, giant trees whose heads seemed almost in the clouds rose up and vied with the slender palms and giant tree-ferns in the race towards the light. Nearly every tree was festooned with huge orchids, vines, mosses, ferns, and also a very curious parasitic palm. The air was hot and heavy and very little light penetrated to the depths below. A fast-flowing mountain stream rushed over huge boulders on its way to the sea. The men soon got to work cutting down slender saplings and graceful young palms. As I watched the lovely palms and delicate tree-ferns fall to the axe, I had the guilty feelings of one who picnics in a cathedral, but soon a fairly large and comfortable hut was built which was made quite rain-proof, an absolute necessity owing to the constant and heavy rainfall, and it was here in the silence of the great tropical forest that I heard for the first time the marvellous notes of the most mysterious and elusive of all birds, the "Siffleur montagne" of the native, the "Solitair" of Gosse, or the *Myadistes dominicanus* of naturalists, which only lives in the deepest recesses of the forests of the high volcanic peaks of the Caribbean chain of islands. But what gave me the great thrill was the sound from numerous throats which I knew belonged to *A. imperialis*, and gazing up I saw these wonderful birds flying round with the equally rare *A. bouqueti* feeding upon the fruits of one of the huge forest trees or climbing about the creepers which festooned the tops. I watched through my glasses one old hen who climbed about with the agility of a monkey. I liked the look of her because she looked such a sophisticated old bird, but all at once I heard the report of a gun and saw her fall fluttering to the ground. My men had brought guns to shoot wild pig and agouti, and they had gone off apparently in search of such game, at least I thought so, but in a few minutes they came back looking highly pleased with themselves. "We got you a Ciceroo, sar, her no die, only wounded in de wing," was what they greeted me with. I hoped this might be so, and for a short time gazed entranced upon this glorious creature which I had travelled so far to see and I ardently prayed that she might live, but, alas! in a short space of time I could see by her eyes that she was mortally wounded. I picked her up and with a lump in my throat

saw the lovely shining purple head sink back and the beautiful orange eyes close in death and heard the last few short gasps as she breathed her last. I cannot tell how I felt, it seemed as though I had broken some sacred trust, I had wandered into these Elysian fields and behaved like a vandal, for I felt that the crime was upon my own head, and I would have given anything to have seen her back in the tree tops. My shame was increased when, later on, I saw the poor thing plucked and dressed for the pot.

The flight feathers of this bird were very worn and frayed, in fact I have never handled a wild bird whose feathers were in such poor condition. Not a single wing or tail feather was perfect, every one was broken and frayed. Evidently it was one of the birds which had been driven out by the hurricane and had returned to find a worse fate. When this bird was shot a pair of Bouquet's Parrots flew down and screamed their rage at the hunters.

In spite of what the guide said about seeing dozens of these birds we saw altogether whilst in the forest valley about eight Imperial Parrots and four or five Bouquet's. Both species seemed to be feeding and living in harmony. It seems strange that two such closely allied birds should live in such close proximity. Soon after we arrived all the birds dispersed and we only saw occasional ones fly over, and although we spent a considerable time in the valley no more birds came round to feed in the trees.

It is the same with this bird as with *A. bouqueti*, the hen is considerably larger than the cock, in fact a large hen *bouqueti* is nearly as large as a small male *imperialis*, but I don't think that the birds ever interbreed.

After my return from the valley of the "Ciceroo" the news got about, much to my regret, that I would buy a "Ciceroo", and several native hunters travelled up into the valley and the surrounding districts in search of the birds. This was unknown to me, for I certainly should have stopped them, for the men will shoot an endless number to get one alive. To make matters worse, I received a letter from the Administrator in which he stated that the news had reached him that I had offered a large reward for live Imperial Parrots for export, and owing to this numbers were being ruthlessly slaughtered and if this

were true the culprits would be severely dealt with by the law. I suppose that this rumour had caused quite a stir in the legislative chamber. All this was very distressing to me, and had I known that the death of any of the birds would have been occasioned by my visit I would certainly have not gone in search of them, but I was glad to think that at least there was some feeling on the part of those in authority concerning the fate of this bird. If, however, the bird is exterminated, it will be by the black, and not by the white, man for, as the wild pig and agouti get scarce, the native hunters will penetrate further into the mountains and take a toll of the few remaining Parrots.

I found that several birds had been shot, including one by the man who had been with me into the forests. He went out again on his own very much against my wishes. The bird was wounded and died, I should think, as much from rough usage as anything else, for the natives treat the wounded birds with great brutality. Another fellow was more fortunate and obtained a beautiful hen, but alas! the poor creature had one wing very badly broken, also one foot and an eye severely hurt, in fact I thought the eye was totally destroyed. I think it also had some internal injuries, but in spite of all this she was a magnificent creature and looked like a small Harpy Eagle with the purple ruff erected and wide open beak and the one eye flashing. I put antiseptic dressings on the various wounds, but was unable to do much owing to the great strength of the bird. I think she might have turned into a lutino, for several of the wing feathers were yellow tinged with a beautiful pink. The purple feathers on the head and breast were interspersed with red ones, and there was a sheen on the plumage such as I have seldom seen on any bird. She was in a very different condition from the poor battered creature which was shot in the forests. In fact, she was the finest Parrot I have ever seen. One doesn't think of parrots walking majestically, but this one did. The sight of this bird walking with ruff erect and fierce flashing eyes would impress anyone. A Parrot usually waddles, but *A. imperialis* walked with the dignity usually assigned to a queen.

We cut the wing feathers so that we could dress the wounds better, but after a week of hunger striking and antiseptic applications she didn't look the same bird though she never lost her dignity. It seemed

rather pathetic to see this wonderfully dignified creature of the great mountain forests brought down to suffer untold indignities at the hands of a creature whom no doubt she had never seen before and to be robbed of her greatest heritage—flight. Many a time I wished her back in her proper setting amid the indescribable grandeur of the great mountain forests. I spoke to the hunter who brought this bird and he said that years ago he had shot a good many of these birds, all for food. Sometimes when a bird was slightly wounded he would keep it for a pet, but when rations ran short, as they sometimes did after a hurricane, the birds would be commandeered for the pot!

My bird was as wild and as fierce as an eagle, it refused all food, so we tried to feed it with a sponge soaked in milk, sugar, and brandy and held on the end of a stick. This it would seize and chew up in its anger, swallowing a little of the liquid in the meantime, but this made its plumage in a terrible state; we remedied it by putting the bird out in the warm morning showers, which soon washed all the stickiness off the feathers.

I had two tame Bouquet's Parrots, which took a great interest in the Imperial, especially one which was the tamer of the two. They seemed to recognize a friend and on the third morning I found one on each side of her. The bird seemed to get a little better, but the very distressing noise in the breathing continued. I feel sure that a shot must have penetrated the lungs. I could have betted my last dollar that the bird would die, and each morning expected to find a lovely corpse. It still refused food, but on the fifth day it took a little banana. It stopped screaming when approached and would let one look at it with the ruff lowered. On the sixth day it ate some of the large mild red peppers which I gave on the advice of a native woman, who said that it would make the bird talk, but she also informed me that should I ever give a Parrot butter it would never talk! I have never heard of an Imperial Parrot talking, but then there have been so few in captivity. As soon as a stranger sees a Parrot, no matter of what species, there is always the inevitable question, "Does it talk?" and then the usual "Pretty Polly", etc. I always tell my visitors that my birds never talk and never will. Then I am questioned

as to the use of keeping them. Why don't I sell them and get an African Grey!

One day the hunters brought in a young hen Bouquet's Parrot. Poor creature, she had one wing shattered and a terrible wheeze, which showed that a shot had penetrated the chest. She looked so gentle and pathetic and tried to hide her head all the time. I hadn't much hopes of her living, but I put her into the outbuilding with the Imperial, and upon seeing a friend the little *bouqueti* went up and put its head under the wing of the great *imperialis*. I expected to see the poor creature's head bitten off then and there, but to my amazement the wing was opened a little further to give more protection to the unhappy bird. These two soon became friends, the *bouqueti* pulled through, and soon they were on the best of terms, living side by side; when in the garden they delighted in preening each other's feathers, in fact, the *bouqueti* lost nearly all its head feathers because of this.

It was not until the thirteenth day that the bird really ate anything: before it just nibbled at things but hardly swallowed anything. I thought it would die of hunger; it got very light, in fact it seemed to be only about a quarter of its former weight, but after a fortnight of refusing food we put it out into the garden and it seized a banana and ate it, and then a piece of sugar-cane. I had no idea that a bird could live so long without nourishment. By this time the injured eye had recovered, also the foot, but the wing still drooped a little. The brilliant eyes had lost their fierceness, and the bird became altogether tamer.

A week after the bird was brought by the native I was due to leave the island, but knowing that if an attempt was made to take the bird away and keep it on board ship it would undoubtedly die, I cancelled my passage and stayed another three weeks. During this time the bird greatly improved, but ate very little, in fact hardly enough to keep a sparrow alive. It refused all food but sugar-cane, and that has very little nourishment in it.

A large crate was made by a native joiner, who, despite all instructions, made it exactly opposite to how it was intended to be made, but we managed with it all right, and this was carried by native carriers about twelve miles to the little port and from there to Roseau.

After staying there some days, where my bird caused quite a mild interest, as most of the people had never seen a specimen before, I sailed for Barbodos.

There are few places I regretted leaving so much as my wonderful dream island. I have never met kinder people, white and native, than those of Dominica, and have never seen or expect to see again a place of such incomparable beauty. It was like leaving some dear and cherished friend, for, like anyone else who has lived there, I had come under the spell of the "Incredible Island".

In Barbodos it was necessary to wait for a week before getting a boat for South and Central America, so at the hotel the "Imperial" and two pairs of the other Dominican Parrots which I had brought away with me were lodged in a large fowl pen. This rest helped the "Imperial" to regain some of its former splendour. The purple breast-feathers appeared like spun glass in the sunlight. It was now quite tame, though it never got as familiar as the other Parrots, but it seemed almost a miracle that the bird recovered and looked so well after the wreck it was a few weeks previously. Evidently *A. imperialis* is blest with a good constitution.

In Costa Rica we managed to secure a quantity of sweet corn in the cob, which is one of the finest foods for Parrots, and this the bird commenced to eat with gusto and after this it started to eat ordinary Parrot seed, which was a great relief to me.

On the homeward voyage we gradually managed to get together a collection of rare Parrots, including Bodin's, Cayman Island, Yellow-cheeked, etc.; these were all placed in the crate with the Imperial Parrot, and strange to say it proved to be the most amicable of all the lot, letting the others do what they liked.

We met with very cold weather off the coast of Newfoundland, and if it had not been for the kindness of the ship's stewards, who let me have their mess room, which was specially heated, the birds would all have died.

Judging from my bird and the ones which I have heard about in captivity, the Imperial Parrot seems to have a disposition entirely different from that of other Parrots. It has been termed morose, sullen, and short-lived, but what else can one expect when a bird

like this is suddenly translated from its wonderful forest home, where its food consists entirely of wild fruits, to a miserably inadequate Parrot cage where it is confined for the rest of its existence in an equally miserable climate and fed on dry Parrot seed? I should think the poor things die of a broken heart.

Given a certain amount of liberty in a garden or a large aviary the bird appears to be active and friendly enough, though there is always a certain amount of reserve about it. Towards the end of the voyage my bird became extremely tame and affectionate, and would let one do almost anything with it without attempting to bite, in fact it proved to be one of the most docile pets I ever had.

In conclusion, I think I am correct in saying that the bird is safe from extermination for some time to come. The greatest danger now lies in the fact that the two edible mammals of the island, the wild pig and the agouti, are, owing to persistent persecution getting very scarce, and the natives are penetrating into the higher valleys of the mountains in search of them and invading the home of the Imperial Parrot. If they are unlucky, as they often are, in failing to obtain either of these animals, they shoot the Parrots. Native hunters had told me that they are not coming back empty-handed when there are "Ciceroo" about. So to some extent the fate of the bird depends on the fate of the two mammals; the poor little agouti is nearly gone but the wild pig will hold its own for a long time.

In St. Lucia, where the rare and beautiful *A. versicolor* is found, the Government have instituted very severe penalties for anyone found taking or killing a bird, and this has been very widely circulated, with the consequence that the bird is rapidly increasing. This should be done in Dominica, for in my opinion no penalty is too severe for the wanton destruction of this magnificent bird.

Being so rare, very few of these birds ever come into the hands of white people, and I think it very unlikely that many will leave the island in the future, and it is also very difficult to get Government permission to export them.

THE TRUE PIGEONS OR COLUMBINÆ

By T. H. NEWMAN

(Concluded from p. 213)

The sub-family *Geopeliinae* contains a small group, closely allied to the Turtle Doves, with rather long tails ; they spend much time on the ground. The tarsus is scaled in front ; as the typical genus has fourteen tail-feathers and the other two genera only twelve these latter should really not be included.

The BARRED GROUND DOVE or ZEBRA DOVE (*Geopelia sinica*). I begin with this common species as it is the type of the genus ; *striata*, by which this familiar little bird used to be known, is eight years later than *sinica*. Robinson says it is abundant in open spaces throughout the Malay Peninsula, numerous in gardens and on lawns, usually in pairs, or sometimes four or five together, and feeds largely "on grass-seed ; they nest early in the year in bamboo hedges and bushes. It is a favourite cage-bird, both among the Malays and also in India, and is one of the most freely imported species of the whole order. The Zebra Dove nests readily in confinement, but is often very quarrelsome. Forehead, cheeks, and throat ashy ; hind part of crown and occiput reddish ; neck and breast barred with black and white ; upper surface brown with narrow black bands on edges of feathers ; middle of breast pinkish-vinous, passing into buffy white on under tail-coverts ; tail of fourteen feathers. The outer ones black, with broad white tips. Young birds have the barring on the flanks continued across the breast and abdomen, and there is no pink on the breast. Habitat : The south of Tenasserin, through the Malay Peninsula to Java.

MAUGE'S DOVE (*G. maugeus*). A very rarely imported species, first exhibited in the London Gardens in 1867, and a young one was bred the following year. Nothing appears to have been written about its habits ; it is recorded as extremely common round the town of Sumbawa. Very like a young Zebra Dove, with the neck, breast, and sides strongly barred with black and white ; abdomen and under tail-coverts white with no vinous tinge ; the bare skin round the eye is pale chrome yellow. Habitat : Lesser Sunda Islands, Timor Group. In

September, 1914, two examples from Tenimber were purchased by the Zoological Society of London. The bird from this locality is considered separable from the typical form on account of the heavier barring on the hind neck and nape and should be called *G. m. audacis*.

The PEACEFUL DOVE (*G. placida*). Before the war this was a very freely imported species, and could be purchased very cheaply, but, like most Australian birds, it is now difficult to get. It seems well named, as it is of a quiet, peaceful nature, unlike its near ally, the Zebra Dove. It is a common species, preferring moist meadows or grassy banks of small streams; it feeds on the seeds of grasses, and is found in flocks of from twenty to fifty. Mr. H. L. White records two nests from Scone, New South Wales, built in peach-trees, as being composed of bunches of bright red berries of the pepper-tree. This is also very like the Zebra Dove, but is slightly longer, and the barring on the under surface is confined to the crop region; the breast and sides delicate pale vinous. Habitat: Australia generally, but not Tasmania. *Tranquilla*, which used to be considered a distinct species, is only a larger and darker race from the southern parts of Australia, while a paler form is found in the mid-west.

The BAR-SHOULDERED DOVE (*G. (Chrysauchæna) humeralis*). This is the largest member of the group, almost equalling in size the Common Turtle Dove. An abundant species inhabiting thickets, swampy ground, and the banks of running streams. In captivity it is very quarrelsome with other Doves; I had two pairs, but I do not remember rearing any young. Its notes are loud, some of them reminding one of those of the Cuckoo. Front part of head and neck also upper breast delicate grey; crown of head and nape brown barred, with black edges to the feathers; back of neck and mantle bright cinnamon, each feather edged with black; rest of upper parts brown, all the feathers edged with black; lower breast pale lilac, fading to white on the under tail-coverts; tail graduated, the outer feathers rufous chestnut tipped with white. Habitat: Australia generally except the south-west; three races from Australia and one from Dutch New Guinea.

The DIAMOND DOVE (*G. (Stictopeleia) cuneata*) is the smallest member of the family, and on account of its graceful shape and pleasing soft colouration one of the most charming birds in the whole order. It is

common along the Fink River, sheltering during the heat of the day under shrubs, but coming out to feed on the grass-seeds in the morning and evening ; they nest usually low down in bushy shrubs near water. A pair of these lovely little Doves kept among a mixed collection of Seed-eaters will support themselves on the seed thrown out by the other birds, though for breeding purposes it has been said that they do better when several pairs are kept together, but they must have plenty of room with abundance of cover, as they are very quarrelsome among themselves. M. Delacour has reminded me that people who breed them extensively in France find that single pairs do best ; they are often kept there with Gouldians and other Finches. I have had several pairs, which hatched many young ; they should have shelter from the cold damp during winter. Head, neck, and breast delicate grey ; nape, back, and scapulars pale brown, wing-coverts dark grey, with two round white spots near the end of each feather ; central tail feathers greyish, shading to black, the outer ones broadly tipped with white ; abdomen and under tail-coverts white ; the bright red ring round the eye adds much to its beauty. The female is browner and the white spots not so pronounced. Habitat : Australia, but not Tasmania. A northern and a southern race, the former being paler in colouration.

The SCALY DOVE (*Scardafella squammata*). A very attractive little Dove on account of its wonderful barred plumage ; it goes about in pairs or small parties of about four, spending much time on the roads and rising with a curious rattling noise to settle in the nearest tree when disturbed. An interesting account by Mr. D. Seth-Smith of its nesting will be found in the AVICULTURAL MAGAZINE, Vol. II (New Series), p. 278. I found the species inclined to melanism, as several birds I had turned nearly black, perhaps from a too liberal supply of hemp-seed. Above greyish-brown, all the feathers edged with black ; upper wing-coverts paler, becoming white towards the tips and edged with black ; below white, with pinkish tinge on lower neck ; the feathers, except the chin, edged with black ; tail of twelve feathers, the three outer pairs with broad white tips. Habitat : Brazil ; other races from North-East Brazil and Venezuela. The name *squammata* must be used for this species instead of *squamosa*, which is preoccupied.

THE INCA DOVE (*S. inca*). According to Bendire, this species is of a tame habit, often frequenting the streets and gardens of towns. The nest, placed in bushes or small trees, consists of a platform of twigs and grasses. The Inca is very closely allied to the Scaly Dove, from which it chiefly differs in having no white patch on the wings; abdomen and under tail-coverts are pale buff, not white, and the black bars, especially on the breast, are much fainter. Habitat: South-western border of United States to Nicaragua.

The next sub-family consists of the American Metal-spotted or Bronze-winged Doves, formerly known as the *Peristerinae*, but as the genus *Peristera* can no longer be used in this connexion, as it has a prior usage in *Mulusca*, they must now be known as the *Columbinae*. They are birds of small size, with metallic spots on the wings, which are short; tail of twelve feathers. They are very terrestrial, spending most of their time on the ground, and are very quarrelsome, fearlessly attacking other Doves of much larger size.

THE PICUI OR STEEL-BARRED DOVE (*Columbina picui*). After long controversy this pretty little bird has been allowed to rest under this genus. Hudson tells us it is common everywhere in the Plata, usually seen in pairs, but sometimes as many as twenty may be met with in one flock. It is resident and familiar, and comes a great deal about houses. In captivity it nests freely, but the young are rather delicate. I lost many before they were able to leave the nest; in spite of its size it will drive away doves of far superior size; a favourite way of attack is to perch on its enemy's back. Crown and nape grey; rest of upper surface brownish-ash; coverts and secondaries edged with white; a band of bright steel-blue across the lesser coverts; sides of head and neck with under-surface pale vinaceous; chin and centre of abdomen white. Female browner without the grey on head and vinaceous below. Iris beautiful lilac. Habitat: S. Brazil, Argentine to Bolivia and Chile. A paler and greyer form from North-East Brazil.

THE GARNET-BARRED DOVE (*Eupelia cruziana*). Mr. A. A. Lane says: "This handsome little Dove is seen everywhere at Pica, in gardens, streets, corrals, etc. I found a nest on top of a post supporting the wall of a shed in the garden, it was a mere platform of stalks of grass, and contained two newly hatched young. I believe that this

Dove nests more commonly in the forks of trees or shrubs." Four specimens were presented to the London Zoological Gardens and others deposited in September, 1915. I do not know of any others being imported. Head grey; upper surface greyish-brown with vinous tinge; anterior greater coverts and inner secondaries with steel-blue spots towards their tips; a chestnut-purple band across the lesser coverts; under surface rosy-vinous; bill yellow, with black tip. Female duller and greyer, without the vinous on the lower parts. Habitat: Ecuador to Peru, Bolivia, and North Chile.

The PASSERINE DOVE (*Chaemepelia passerina*). Bailey, in his *Birds of Florida*, writing of the typical form, says: "This, the smallest of the Dove family, is found all over Florida, and is particularly abundant in the coastal area. On driving along our roads, one sees them sitting on the telegraph wires, real estate signs and house-tops, or feeding in the roadway, where many are killed by the passing autos as they speed along, especially when the birds are drinking from depressions in the road during the rainy season." They feed on weed and grass-seeds, and breed from January to November, placing their nests anywhere from on the ground up to 15 feet or more in trees. Passerine Doves have been imported in considerable quantities, and have nested a number of times. Nearly everyone who has had several specimens has remarked how they differ in colouration. This is hardly to be wondered at, as there are at least sixteen different forms known, and it is generally quite impossible to find out the locality where one's birds come from. The typical bird has the crown, occiput, and hind neck bluish-grey, the feathers margined with dusky; upper parts plain greyish-brown, wing-coverts lighter brown with metallic blackish-purple spots; primaries chestnut, with blackish ends and outer webs; forehead, sides of head, neck, and under-parts greyish vinaceous, feathers of crop region with dusky margins giving a scaly effect. The female lacks the vinaceous tint on the under-parts, and is generally duller. Habitat: South Atlantic and more Eastern Gulf States of North America, North to South Carolina. Other races from Texas, New Mexico, Arizona, and California, South to West Indies, and through Central America to South America, as far as Peru and Paraguay. The bird known as *terrestris* is the same as the typical form.

THE PIGMY OR GREY GROUND-DOVE (*C. minuta*). Nothing seems to have been recorded about the habits of this little Dove in a wild state except that they resemble other members of the genus. It was first bred by Mr. Teschemaker in 1908, who gives an interesting account under "Nesting of the Dwarf Ground Dove (*Chamæpelis griseola*)", AVICULTURAL MAGAZINE, Vol. VI (New Series), p. 257, which caused Mr. H. Bright to think he was the earliest to rear the species in 1924 (AVICULTURAL MAGAZINE, Vol. III (4), p. 253). Upper parts greyish-brown; upper wing-coverts greyish-vinous, the inner webs with some steel-blue marks; under-surface vinaceous; under tail-coverts grey with white edges. The female is greyish-brown above; greater wing-coverts edged with white, and under-parts pale greyish-brown. Both sexes have under-surface of wing cinnamon or pale chestnut. Habitat: Greater part of South America. A darker race inhabits South-West Mexico to West-Central Colombia.

BUCKLEY'S GROUND-DOVE (*C. buckleyi*) is very like the Pigmy, but the general plumage is more vinous and less grey. I have found nothing about its wild habits; it was represented at the London Zoological Gardens in 1915, when I noticed the beautiful carmine eye of the living bird, rather brighter in the male than in the female; bill dusky grey, paler at base; feet flesh colour. The under wing-coverts are black. Habitat: West Ecuador and North-West Peru.

THE TALPACOTI DOVE (*C. talpacoti*). Schomburgk says that he met with this pretty rufous species near the coast and in the Savannas, though never in such large flocks as the Passerine Dove. Near the coast it prefers open slopes devoid of woods. In Brazil it is found even in towns and villages, and may be seen in the streets of Rio de Janeiro. White says they nest in orange-groves in Argentina. This Dove has often bred in captivity; I had a pair which certainly nested, though I do not remember rearing any young. General colour vinaceous-red; upper part of head and nape grey; paler below; inner wing-coverts, scapulars and tertials marked with black steel-blue spots. Female duller and browner. Habitat: South America from Venezuela to North Argentina.

THE RUFOUS-WINGED GROUND DOVE (*C. rufipennis*) is very common in Central America, though it appears less frequent in Honduras;

it has been bred by M. Jean Delacour in France. This Dove is very similar to the Talpacoti, but has the quills cinnamon tipped with brown; under surface of wing cinnamon, but the innermost under wing-coverts are black. The female is dull brown, paler beneath with no vinous tinge. Range: British Guiana, Venezuela, and Colombia, north to Guatemala, Yucatan, and Vera Cruz. In the lowlands of South-West Mexico, North to Southern Sinaloa, a paler race has been distinguished under the name *C. r. eluta*.

The ASHY DOVE (*Claravis pretiosa*).—Mr. W. Goodfellow, writing in *The Ibis*, 1902, p. 228, informs us that it is not common in Ecuador, being met with in pairs running about the footpaths in the clearing. When disturbed they skulk in the grass until a person is close to them, then rise suddenly with a swift zigzag flight. In Central America, according to Godman, it appears to be migratory and nowhere common. The nest is placed on the outside boughs of low bushes. This does not appear to be a frequently imported species, though it was brought to Amsterdam as long ago as 1857 and to London in 1886. All three species of this genus differ greatly in the sexes, the cocks being grey and the hens brown. Male general colour bluish-grey, paler on underparts; forehead and throat, nearly white; greater coverts, outer scapulars and inner secondaries with roundish blue-black spots; primaries and end of tail, black. Female above brown, paler on forehead and almost cinnamon on upper tail-coverts, the spots on the wings brownish-cinnamon; below, paler brown. Habitat: South Mexico to Peru, Bolivia, and Paraguay. This is the Dove which used to be called *Peristera cinerea*.

GEOFFROY'S DOVE (*C. godefrida*).—Taczanowski, *Ornith. du Peru*, tells us he met with this Dove many times on the margins of the temporary lakes in little companies or in pairs. It feeds upon fleshy fruits as well as on seeds. It is much more freely imported than the Ashy Dove. A large number have been bred in the London Zoological Gardens since the year 1876. Male above bluish-grey, nearly white on forehead and chin; the wing-coverts crossed by three bands, a smaller one on the lesser coverts blue. The other two, much broader, are purplish-chestnut edged behind with pale grey; tail, all the feathers, except central pair, with white tips; below grey fading to pure white



CHINESE FORKTAIL (*Henicurus sinensis* Gould).

on abdomen and under tail-coverts. Female, general colour reddish-brown, more fawn colour below ; wings with three purplish-chestnut bands as in the male, but edged behind with fawn. Habitat : South-East Brazil. The name *geoffroyi*, by which this bird has been called, was only the one put on the plate when it was first described.

AVICULTURAL JOTTINGS FROM SHANGHAI

By H. C. EUSTACE

Owing to "pressure of work" during the past year I have been unable to write for the Magazine, but am now sending along a few notes which may perhaps be of interest to some of our readers.

During my studies of Chinese and in conversations whilst travelling in the interior I have come across the following interesting bit of folklore concerning birds :—

In the vicinity of Peking I asked a Pigeon fancier, whose flock was circling high overhead, why whistles were attached to the Pigeons' tails. His reply was that the whistling noise protected the Pigeons from the attacks of Hawks. In further conversation he informed me that Hawks never nested. Asked how they reproduced themselves, the following explanation was given. Pigeons usually lay two eggs to a clutch, but sometimes three are laid ; when these hatch the young bird from the third egg is a Hawk, which when it grows up eats the two young Pigeons and flies away to spend the rest of its life hunting for more Pigeons to eat.

The Manchurian Crane does not lay eggs, but gives birth to young ones ; furthermore, its life span is given as several hundreds of years.

Amongst other rare birds kept during the year was a young CHINESE FORKTAIL (*Henicurus sinensis* Gould) which reached me in rather poor condition from Hangchow, Chekiang.

On arrival it had to be hand-fed, but soon learnt to take small insects when these were floating on the surface of the water vessel. Its actions and general habits are similar to those of the Wagtails, except that instead of raising and lowering the tail vertically, as do the Wagtails, the Forktail opens and closes its tail, each fork

opening downwards and outwards. I have sent, under separate cover, an engraved plate of this species from which members can obtain a general idea of the bird.

I noticed that when bathing in a smooth-surfaced bath one wing was lowered to steady the body whilst water was splashed on the body by the head and other wing. I never saw it bathe in any other way.

Although this specimen was quite tame it had little to recommend it as an aviary bird. Unfortunately, it died suddenly from a mosquito bite on the eye-lid, otherwise I should have given it liberty.

DERBYAN PARRAKEETS.—Several cocks and a single hen were obtained from Szechuan last year, and were kept for varying periods to recover from their 1,200 miles journey before being sent home to England.

Owing to civil wars, banditry, and poor means of communication, it is extremely difficult to obtain birds from the interior provinces. Even when collectors are sent they often turn back on account of the bandit dangers.

I am hoping that with the birds now in England some breeding results will be recorded, but I am endeavouring to collect further information regarding the habitat of this bird, and if successful will write an article on it later.

INCE'S PARADISE FLYCATCHER (*Terpsiphone incii*, Gould).—A young cock bird in immature plumage died two days after it came into my possession. It is, in my opinion, an interesting and beautiful bird which would repay further study. The variation in plumage between the rufous immature cock and the adult black and white bird is most striking.

BLUE AND WHITE FLYCATCHER.—A few cocks appear in the market each spring, usually in wretched condition due to poor accommodation and wrong feeding from the time they are caught, but if purchased before their vitality is too low they quickly recover and become tame when suitably caged and fed. A specimen which I had for six months, and which is now in England, appeared to thrive on a diet the basis of which was Japanese fish meal, biscuit, sponge cake crumbs, or yellow bean flour, with mealworms, flies, and other insects as obtainable.

SWINHOE'S CROW TIT.—This is a most attractive bird in an aviary or large cage where it can obtain sufficient exercise, and rapidly becomes tame.

At the time of writing I have six in an outdoor aviary where they have been wintered, and they appear to have remarkable vitality for such small birds, judging from an unfortunate accident which happened when the birds were first placed in the aviary. One night the birds, frightened by cats, dashed against the wire and got caught between a bunch of reeds and the wire netting, resulting in two birds losing a leg each almost from the thigh. In spite of the cold winter weather they pulled through and quickly learnt to balance and feed with only one leg. I might mention that most food is held between the feet whilst being eaten. Another interesting observation was the manner in which these one-legged birds learned to rest, and that was hanging head downward (like a bat) from a branch on the roofing wire. They have very strong beaks and quite enjoy maize nuts, hemp, and sunflower seeds in addition to their staple food of mixed millet, fruit, and soft food. Insects of all kinds are welcome, but I found the most suitable were small white grubs which are to be found feeding in willow-branches, as the work of splitting the willow twigs helps to keep the birds' beaks in good shape.

CHINESE GOLDEN-WING (*Chloris sinica*).—I have two pairs of these birds. Both pairs nested in an indoor attic aviary: one nest of four eggs hatched three young which died when four or five days' old, and the other nest contained one clear egg. With outdoor aviary accommodation I am sure these same birds would have successfully reared their young. Early in the spring one cock bird paired with a Green Roller Canary hen, but the eggs were clear. The cross would not be difficult to obtain if anyone wanted it.

A NEW ASPECT OF THE JAPANESE BUDGERIGAR BOOM, 1927-8

In course of a brief conversation last week with a gentleman from Kobe, who informed me that during the boom he handled half a million yen (£50,000) worth of coloured Budgerigars at a considerable profit to himself, I gathered that although the boom originated from an endeavour to build up an export trade in home-bred birds, the gambling

fraternity took up birds as a medium for speculation, and my informant went on to say that regular exchanges were opened in almost every street and people would buy a bird or birds at one room and sell at the next place or the same street within a few minutes in the hope of finding a higher bidder. On this account one can easily see why when the bubble burst the rare coloured Budgerigars could not maintain their market value of many thousand yen a pair!

Incidentally, I gathered that although this boom was the means of several of the largest British dealers clearing enormous profits on their shipments they were not content with legitimate business and tried to put some very crude transactions through; and may I add that in my humble opinion the average British bird-dealer is hardly fit for the kindergarten class when it comes to crooked business as done in the Far East.

Now that the boom is over the coloured Budgerigar is being shipped back to Europe, and the dealers are still clearing quite big margins on their transactions. Large numbers of birds have gone to the U.S.A. and even to Australia, where the Government has not yet seen fit to put them on the prohibited list, which is strange when one reads some of the names on this list. It's surprising the hundred per cent "Aussie" Budgerigars have not raised the colour ban against these Orientals!!

BREEDING THE SOUTH AFRICAN WATER RAIL

By W. SHORE-BAILY

My pair of *Rallus caerulescens* came over from South-East Africa in the spring of 1928, and I am indebted to our editor, Mr. Seth-Smith, for letting me have them, together with a pair of the more attractive Black Rails (*Limnecorax niger*).

They made no attempt at breeding last summer, and as I was rather doubtful as to how they would stand the cold and wet of our winter, I wintered both these and the blacks indoors. This spring I turned both pairs into an aviary containing a small pond, now heavily over-



FIG. 1.—NEST OF THE BLACK RAIL (*Limnocorax niger*).

FIG. 2.—NEST OF THE AFRICAN WATER RAIL (*Rallus caerulescens*).

[To face p. 286.

grown with bullrushes and water-mint. In these weeds they were completely lost, and I didn't see the Brown Rails again for two or three months. The Black Rails, on the other hand, were to be seen most days climbing about in the willows and bushes, and were not nearly so shy as the others. In fact I consider them a delightful aviary bird. The Brown Rails are the shyest, and consequently least interesting, birds that I have ever kept. Our English Water Rails are just as bad, and a single bird that was introduced into a neighbouring aviary in the early spring has never been seen since, although I haven't the least doubt but that it is still alive and well. I regret to say that I am unable to write very much about the nesting of these birds, partly because of their extreme shyness, and partly because of my absence on holiday during the incubation period. The nest was very well constructed of rushes, and was exactly like a miniature Moorhen's nest. The eggs were not to be distinguished from the eggs of our own Rail. In the middle of July I went for a short holiday, and two days after I had left I got a letter from my daughter saying that she had caught a little Water Rail. From her description it was entirely covered with black fluff and was about the size of the top of her thumb. On my return in August I asked if anything more had been seen of the young Rails or their parents, but no one appeared to have even had a glimpse of them, and it was two weeks later before I got a momentary view of one. As far as I could see it was about half the size of its parents, and a dark, blackish brown all over. Just how many young ones were hatched I do not know : but as no eggs were left in the nest I conclude that they all left the nest, and that the others must either have been killed by the Thrushes in the aviary with them or must have found some small hole that enabled them to get into a neighbouring aviary where no doubt they quickly fell victims to the other occupants. They would easily get through $\frac{1}{2}$ inch netting when newly hatched. Yesterday, 10th September, I made an attempt to catch the young Rail with a landing net, but unfortunately failed, as its movements on the ground were like lightning. However, I saw it near enough to be able to say that it was about the size of its mother, but a good deal darker in colour. I might say here that the hen is about one-third smaller than its mate, and I am wondering whether

this is so with the sexes in our own Water Rails. In colour and general appearance the English and African birds seem exactly alike, and I doubt if anyone could differentiate them without actually having specimens in the hand. I have not knowingly heard the call of our bird, although a few individuals are found here occasionally, but the call of the African species is a low whistle uttered when excited or alarmed. The call of the Black Rail is also a whistle, but clearer and more musical. My Blacks are more musical. My Blacks are, I am afraid, two males, as they have made no attempt at nesting. This is unfortunate, as I am quite sure that they would be easy birds to breed if a true pair could be obtained. Several years ago a hen I had then nested twice, the situation being a tuft of grass, but I understand that in Uganda they frequently nest in bushes some feet from the ground. The eggs are much more finely speckled than those of the Common and African Water Rails. I am enclosing photos of nests and eggs.

THE AVICULTURAL SENSE

By THE MARQUESS OF TAVISTOCK

People who keep birds may be divided into two classes : those who possess the avicultural sense and those who do not. The dividing line may not be a very clear one, but the contrast of the two extremes is great indeed. Persons endowed with the avicultural sense make their bird-keeping a work of art. They give their birds the very best that their means and accommodation allow. They take pains to discover, either from friends or from works of reference, all the needs of the species that they keep and they are always striving to satisfy them to the full. They have a quick eye for illness or poor condition, and a sick or draggled bird is an offence to them and an evil to be speedily and completely rectified. They aim at perfection and can be satisfied with nothing less.

People without the avicultural sense regard birds as an interesting adjunct to their general ménage. They are not wilfully cruel, but they house them on the principle that " they ought to be able to live

there, don't you think?" and feed them on the principle "that ought to be enough for them". They hardly ever read up about the species they keep, and, if they ask advice, they seldom trouble to take it if it involves any bother; or, if they do try to take it, they act in so unintelligent a way that they are soon discouraged by the poverty of the results. They are slow to recognize illness and accept ragged plumage and overgrown toe-nails as the inevitable outcome of fate and avian perversity.

I will quote two examples of what I mean, but for very obvious reasons no names will be mentioned!

Some time ago, in the centre of a large town, there lived an elderly man who acquired a few foreign birds, although he had never previously bred anything but canaries and that many years before. He was not a nice man; he was mean, grasping, jealous, and sly and was cordially disliked and distrusted by most of his acquaintances. He was extremely poor, having been long out of work and never likely to be again employed. He inhabited a slum dwelling in bad repair and he and his family were much overcrowded. But despite all this he had the avicultural sense and his bird-keeping was a revelation to me of what the most unlikely material can accomplish under the most disadvantageous circumstances. Inexperienced in foreign bird-keeping, he had been wise enough to seek sound advice and follow it faithfully. His roughly constructed but serviceable indoor aviary made the maximum use of the limited accommodation available, with the result that it was just enough to do the birds well. The aviary was spotlessly clean and no detail of management bearing on the provision of sun and shade, draught-protection and nesting accommodation, green food and grit, baths and natural perches, had been omitted. Had he asked me what more he could have done for his birds I could truthfully have answered, "Nothing."

Not many miles away there dwelt a member of the Avicultural Society, respected and esteemed by numerous friends, comfortably endowed with this world's goods, the owner of a nice country house and garden—and also of a few foreign birds. This member had *not* the avicultural sense. The birds, some of which looked rough and dejected, were for the most part confined in a flight cage which was

too small. The cage was also filthily dirty. It was all-wire and fully exposed to draughts; there was no roosting accommodation, no bath, no green food and no natural perches. When the owner asked me what could be done for the birds' comfort I was tempted to reply, "Everything," and was conscious of that rather overwhelmed and helpless feeling which assails polite people (like me!) who think they have the avicultural sense when they are suddenly confronted by incompetence sheer, unutterable, and probably invincible. I made one or two tentative suggestions but I doubt if they were taken or bore much fruit, for, as I have already said, those who lack the avicultural sense seem often as incapable of profiting by counsel as they are slow to seek it. Yet surely nature and human art combined have produced the bird even for such as they—the Barbary Dove—which, ever since its ancestor returned with nesting material to the Ark, has been unfailing in its willingness to live and breed under management which would break the heart and constitution of any ordinary feathered fowl.

ORPHANS AND MAIMED BIRDS

By HAMISH NICOL, F.R.C.S., F.Z.S.

Miss Knobel's "Story of a Pigeon" has prompted me to write some experiences of mine with orphans I have attempted to rear and maimed birds I have treated—my successes and failures.

The first maimed bird I ever had was a mongrel Plymouth Rock. This was quite a young bird who had come to grief with a rat-trap. Apparently she had tried to remove the bait and left the greater part of her beak behind. The farmer, to whom the bird belonged, was about to kill it, but I persuaded him to give it to me. I was very young at the time and was delighted with my acquisition.

Feeding the bird was very difficult at first as it could not peck and the stump of the beak was very tender. However, with patience and feeding with soft food I kept her alive until the remains of her beak got hardened and she was able to look after herself. I had to put her food in a fairly deep cup so that she could pick it up.

After some weeks she became very independent, and returned to London with us. She lived for many years in the garden, but used to annoy my Mother by roosting on the drawing-room door. I forget what the end of her was, but I expect she died a natural death.

My second bird was a young Duck. One very cold and wet day I was walking round the Pond in Kensington Gardens when I noticed a Duck with a lot of young ones apparently trying to drown one of them. It would single this one out from the others and hold it under the water. The poor little thing made its escape only to be caught again, and another attempt at drowning would follow. The little Duck became quite exhausted and was washed up on the bank. I picked it up and when it had revived took it along to another Duck with young and let it swim out to them. I thought it had got with the wrong family and possibly that was what the trouble was. The result was the same as before, so when it came near enough to the shore I picked it up and put it in my pocket and brought it home. It was very exhausted and cold. I did all I could to revive it, but I had had no experience and I could not induce it to take any food and it died that night.

My third experience was with an injured Pigeon. Some friends of mine who live in the Temple asked me to go and see a Pigeon they had captured. The history was as follows: they had noticed this bird being mobbed by other Pigeons in the gardens. It was a full-grown cock bird. It was very lame but could fly quite well. It was having a very poor time and unable to get any food. In the evening they captured this bird when roosting on the ledge under their windows. When I saw the bird I found it had a wound over the right hip joint, and that there was a fracture of the femur high up. I enlarged the wound and removed a large lead bullet about the size of a pea. I also removed some feathers that had been driven in and some loose pieces of bone. It stood the little operation well. I dressed the wound daily, packing it with a strip of iodoform gauze and allowing it to heal from the bottom. The bird made a good recovery. He developed a false joint and was able to get about on it well and without any pain. My friends looked after the bird until he was quite recovered and then let him go. He was now well able to look after himself,

and was constantly seen in the gardens mixing with the other birds. He married and brought up a family. The last I heard of him was that he was going strong.

The next case is perhaps more interesting. One morning when my wife was attending to my birds a Pigeon flew against the window with great force. It struck the window so hard that it was stunned and fell into the front garden. It was picked up and brought into the house quite unconscious. After some time it recovered, but when it attempted to move it threw itself backwards. It was restrained with difficulty. Any movement the same thing happened. These back somersaults were very violent and the bird lay on its back kicking. I came to the conclusion that it had injured one of the Ant. Lat. semi-circular canals or possibly the inf. cerebellar paduncles.

It was very difficult to nurse this bird or to feed him. I met with much opposition from my family. They said it was cruel to keep the bird and urged me to give him some chloroform. I refused to give him up and nursed him myself. This was a very difficult job single-handed as directly he was touched he threw himself backwards and feeding was difficult. I had to hold him and open his beak and force food down. He had no idea of feeding himself. However, with a good deal of patience I managed it. As the days went by the falling backwards tendency got less, and nursing got easier and after a time he began to take his food, though he would still fall backwards if he were startled or moved suddenly. Later he was able to walk a step or two. Later he got better still and could walk fairly well though with a limp and many falls. After about two months he could walk and feed himself quite well. When he got quite strong I let him have a fly in my room. As soon as he could fly well I took him into the garden and let him go. He made straight for a tall tree near and was strong on the wing. He used to come into my garden to feed for a long while after this. We knew him by his slight limp. I think he is one of the Pigeons that come to feed every morning still.

My next case was that of a Fan-tail Pigeon. One morning I heard a fluttering scraping noise behind the fireplace in my dressing-room. Attempts to exactly locate the sound or see up the chimney were abortive. Nothing could be felt by putting the arm up the chimney.

This noise went on for three days. On the morning of the fourth day a very dirty and battered white Fan-tail Pigeon made its appearance in my dressing-room. It walked, or rather staggered, into the bedroom. I gave him some water and I thought the poor little beggar would never stop drinking. I then gave him some food and put him into an old Parrot cage. We kept him till he was well and strong and then gave him to a neighbour to whom he belonged. He joined the others, who showed great joy to see him again. What had happened was that he apparently had been sitting on the chimney-pot with his little tail up when a gust of wind tipped him down the chimney.

The next was a young Dove that had left the nest before it could fly properly. It fell into my front garden and was caught by a cat. It was rescued before much harm was done.

We took him in and fed him. Feeding young Pigeons and Doves is difficult since, I believe, the young birds put their beaks into the mouths of their parents when they are fed and it is difficult to get them to open their beaks. One has to open the beak and force the food down. It is surprising how soon this bird learnt the trick of opening his mouth. I have a little instrument, in several sizes, which I always keep by me for feeding young birds. It is a short length of glass tubing with a piston made of wood to fit it. The piston is withdrawn and food forced into the tube and the piston replaced. When the bird opened its beak the tube is pushed into the mouth well back behind the tongue, and the piston forced home. The food is thus deposited into the bird's mouth. It is a very handy little instrument. I got this idea from a very old friend of mine who has brought up many young birds and is a past master at it. All the young birds I have reared have been fed this way and appear to greatly appreciate it. This Dove learned the trick quickly and was no trouble.

My daughter brought him up and he got very fond of her and used to play with her. When she went into the room he would fly to her and settle on her head or hand and when on the floor would pretend to fight with her. He would beat her with his wings and peck her, cooing all the time. He would follow her everywhere and when taken into the garden would fly round and come back to her.

My next was another Pigeon. This baby had got himself into a gutter-head at my Hospital. There was a wire netting over this gutter-head expressly to prevent Pigeons from nesting there. I think he must have fallen down from above. There was no possibility of his getting out. His parents were feeding him. I got a ladder and rescued him and brought him home in my pocket. He was a nice friendly little bird just fledged with all his baby down on the ends of his feathers. I had the same difficulty in feeding this bird as with the other, but he very soon learnt to open his mouth and all went well.

He did well and got very tame. He would fly round the garden and come back and firmly refused to take his liberty.

The next two were small Sparrows. I have always wanted to have a Sparrow. I am very fond of them. These two I caught young. The first had his feet "balled up" with (?) mud. They looked like a pair of little club feet. I washed the mud off and he was able to hop about quite well. I think it was on account of the condition of his feet that he had fallen from the nest, as he couldn't hold on. He could fly very little and only low to the ground, and was in imminent danger of the cats. I took him in and fed him. There was no difficulty about this. He took his food well, perhaps too well. He was very fond of meal worms, and I should be afraid to say how many he would eat "at a sitting". He became perfectly tame and very cheeky. But after a few days he had several fits and died. Whether he was injured in his fall or his feeding wrong or too much I don't know. However, he did not live many days. I was very sorry to lose him. The other was just the same, though his feet were not "balled up". He died after a few days of fits.

The next three were baby Starlings. These I caught, having left the nest before they could fly. They were easy to feed and took their food well. They were fed four times a day and given as much as they would take each time. But first one died and then another, till at the end of a week all had died. I could not make out what was wrong as they seemed to be doing well. In the evening they seemed very fit and in the morning one after the other died. I had a post-mortem made on the last of them. The report showed that in spite of the enormous quantity of food it had had there was no sign of food

in the crop, stomach, or intestine. The bird had, in fact, died of starvation. Apparently it is necessary to feed these small birds very frequently. Perhaps every ten minutes and with a small quantity each time.

My next was a young Sparrow, a little hen. She landed on the running board of my car one morning as I was taking it out of the garage. I picked her up and put her into a little cage. Profiting by my experience with the Starlings I took her everywhere with me. I took a pocketful of mealworms and a small tinful of bread and milk. I had to feed her forcibly at first, but by the end of the day she had learned not to be frightened and took her food from the "tube". For many days this bird accompanied me everywhere. She did well and was soon able to feed herself. She still liked me to feed her whenever I came near.

As soon as she could fly I let her out in my room at intervals to stretch herself. She became very tame and friendly. I then put her in a large cage, but she seemed distressed and kept fluttering against the bars. I really think she did not like the large cage, having been used to the little one. I thought she was unhappy so I let her go. She had not been with me long and I judged she was well able to take care of herself and she was very strong on the wing. I was sorry when she left. She would have become a great pal.

My last two were Carrion Crows. I got these last Whitsun. A farmer friend of mine had shot the parents and knocked the babies out of the nest.

They were quite little with very scanty covering and tails just little rows of stumpy quills. I had no intention of letting these birds die of starvation, and, as my wife flatly refused to "nurse any more sick birds", I took them everywhere with me. I put them in a basket with some hay and fed them on raw meat. Feeding was easy. They had very large mouths which they opened very wide. There was more mouth than bird. There was no need to use the tube. I put a spot of cod-liver oil on some of the meat to prevent rickets. They did not like the oil very much, but I got them going on meat without oil and then put in an oily bit. Once it was well behind the tongue it went down all right.

When they were thirsty I trickled water down their mouths from a swab of cotton wool. They liked this and when they had had enough they used to throw the head forward and let the water dribble out. It seemed to amuse them to do this. The weather was very hot at this time and as they seemed to feel the heat I used to turn back the lid of the basket and put them on the top to cool down. They would lie on the basket lid in most extraordinary attitudes. They looked as if they were dead. In fact some of my patients thought they were dead and asked me what I was going to do with them. I had only to go up to them and say "Boys!" and they would spring to life and open their beaks wide.

They did well and in about a week began to try to stand. As soon as they could get on their legs I took them into the garden one morning to let them have a try at walking. The stronger and more forward bird of the two first trundled about on his "elbows". He gradually got up on to his feet and commenced to walk. He seemed very pleased with this and started off to explore the garden, walking well, and every now and then giving a little jump. I took some cinema photographs of him. These photographs show that he had a slight limp which is interesting from what followed. He made his way to the far end of the garden and I went up to bring him back and, as I picked him up, he fluttered a little as if he wanted to escape. I put him down to get a better grip and to my horror found he was completely paralyzed in both legs. He was very frightened. I put him back in the basket. The other one stayed about in the same place and did not get right up on his feet.

The paralyzed one settled down in about an hour and seemed free from pain. I was now in a difficulty since I had to have two baskets and a bag to carry about with me. I have to make a journey to the country twice a week to attend my clinics and I always go by train.

To get over the difficulty I decided to drive down so that I could take my birds. Unfortunately on the way home I had an accident and my car was wrecked. We had to hire another car to get back.

I was now in a worse hole than ever as it was quite impossible to manage the two. However, my wife came to the rescue, relented, and took charge of the well bird. He was now nearly able to feed

himself. The sick one went everywhere with me. He seemed quite happy and took his food well. Gradually the use of his legs began to come back and he began to raise himself up. The right leg was in a state of flaccid palsy and the left somewhat spastic adducted with the foot inverted. I thought he had probably had a hæmorrhage into the cord or possibly a fractured pelvis due to his fall, one or the other having been made worse by the exercise he had taken. I had him X-rayed. The X-ray showed no sign of fracture anywhere.

During the next month he went on improving. He got movement in both legs and the legs became stronger. I used to take him out of the basket at frequent intervals and give him passive movements. Later he was able to sit on the top of his basket, though he was very unsteady. He soon got tired and I put him back. He was a very knowing bird and knew the daily routine quite well. I think he enjoyed his travelling and in the train seemed to take an interest in his surroundings. I always had the lid of the basket open. At the end of the month he did not appear so well and his legs got weaker. He became more restless. He was now unable to sit on the top of the basket. I used to put him there and arrange his feet for him but he was not comfortable and was always glad to be put back. I made a little cradle for him. Mechanically it was sound but he did not like it. I find wild birds and animals cannot tolerate anything in the shape of restraint. All I could do was to wedge him up with hay. The day after he appeared not so well he became definitely weaker and was very restless. He couldn't settle down at all. When he was in the basket he wanted to be out and when out tried to get off the basket. He was very strong in the wings and flapped them violently. His nerves seemed to be "on edge". While sitting propped up on the top of the basket he suddenly flapped his wings in an attempt to get off and fell over the side. It was only a few inches from the floor, but I was not quick enough to catch him and he got one of his claws caught in the basket and injured his leg. After this I could do nothing with him. He became quite wild. I could not induce him to take any food, and the only way I could quieten him was to put him in this basket in the dark.

The following morning he was worse. He was quite wild. I am sure he did not know me. He kept flapping his wings. His legs were completely paralyzed again. I think he was in pain so reluctantly I gave him some chloroform. When he was under I examined him carefully. I found he had a fracture of the tibia just above the ankle-joint on the right and a green-stick fracture of the left calcis. The former, I think, was due to his fall the night before, and the latter probably an old fracture dating from his original fall. It was probably refractured again during his exertions. I gave him more chloroform and so ended his little life. It is interesting from a pathological point of view, but a sad ending after six weeks' nursing.

MELANISM IN ORNAMENTAL FINCHES

By GODFREY DAVIS, I.C.S.

Some few months back I saw in the Editorial in the AVICULTURAL MAGAZINE a reference to melanism in a Peter's Fire Finch. I have always attributed melanism, which constantly occurs in Avadavats in captivity, to a diet of hard seed. A visit to the Bird House in the Zoo will show how dark Avadavats become in captivity and how the deep crimson of the wild bird is lost. I thought that a diet of half-ripe seeds would preserve the colour of these little birds, but a recent experience with some that were caught near here and brought to me has led me to believe that diet is not the only contributing factor, and that an essential factor to the formation and retention of the deep crimson is rain.

Some weeks ago—to be precise on 19th July—a Waghri, a man of a jungle caste, brought me a dozen cock Avadavats which he had netted. Most of them were coming into colour and that colour was a deep crimson. I had that night to go away and had not time to see the birds till the following Wednesday when, to my surprise, the deep crimson had changed to a bright red. I was much surprised and thought the reason must have been that in the period of my absence, only a few days, they had been kept in the bungalow and fed on hard seed. I had them put out in the garden in the morning and evening ;

had them fed on half-ripe seed, and I had them left out in their bamboo cage in the rain. Some other Avadavats which I had, which had been fed on hard seed and were a brickish-yellow red, I kept as controls. I did not think sunlight was a contributing factor because we were having very little sun; the days were clouded and rainy. After a time the fresh-caught birds regained their proper colour and I had made up my mind to write to you to say that Avadavats fed on half-ripe seed would assume the colour of the wild birds, but I was busy and delayed. And then to my surprise the birds started to lose the crimson again. In most cases the colour went a bright vermillion and in the case of one bird particularly, which was much less advanced in colour than the others, the feathers were a very light brick red, indeed almost yellow.

I was extremely puzzled and disappointed. Apparently the secret still eluded me. It was not food alone. Last Sunday I went out into the fields to see the crops which were reported to be suffering from want of rain as for the last fortnight we have had a dry spell of weather. I went by a lake and saw the Samo-grass on which it is said wild Avadavats at this season live, and I plucked some, and I noticed the ground was reeking with moisture. Then I remembered the Waghri had told me, when questioned, that those Avadavats were of the finest colour which lived by the banks of rivers and were always bathing. I did not attach much importance to that then, but the recent changes in the colour of my birds made me think that there was something in it. I gathered a large bunch of the Samo-grass and returned, and I determined to leave the birds out in the rain and watch. Unfortunately, so certain had I been that half-ripe seeds were the decisive factor, that I had released the birds which I had kept as controls. The dry spell broke on the Monday and for the last six days I have left the birds out in their bamboo cage in the rain and let them soak. The result has been interesting because to-day the birds have lost the bright vermillion colour and have become a deep crimson with the exception of two birds which had really started to come into colour during the dry spell, and the feathers of these are not crimson but brick red, in one case almost yellow. Can it be that rain has some effect on the pigment of the feathers and that without this contributing factor the crimson

pigment does not form ? And is this why the red of the Redpoll changes to yellow in captivity and then finally disappears ? Whatever be the cause, I am now convinced that the two chief factors in the crimson colour of the Avadavats are half-ripe seeds and rain. I do not think sunlight and temperature are of much importance because some of the finest coloured Avadavats I have seen, the bird dealer told me, came from Kashmir. And in the monsoon here, when the colour of the wild birds must be forming, the sun is often hidden by clouds and rain. Is any member of the Society sufficiently interested to put a few cock Avadavats in a bamboo cage, feed them on half-ripe seeds and keep them in the rain, and watch ; or if not Avadavats, then Linnets or Redpolls ? I do not think an outdoor aviary would serve the same purpose (1) because the diet could not be controlled ; and (2) because the birds would in all probability take shelter from the rain. In the monsoon rain in India the wild birds must be wet for hours together.

CORRESPONDENCE

COD-LIVER OIL

SIR,—The value of cod-liver oil as a food for livestock is becoming increasingly widely recognized, and a German Budgerigar breeder recently declared Canary seed soaked in cod-liver oil to be infallible as a preventative of egg-binding.

An experiment I have just tried with a pair of Brown's Parrakeets has also given results unmistakably favourable to the use of cod-liver oil. The hen of this pair mated to a cock now dead but apparently a perfect specimen in every way, produced in 1927 hopelessly rickety young in a wooden nest-box in the aviary shelter.

Last year, in a natural, earth-filled tree trunk in the aviary shelter, she reared three young birds which were fair specimens, though nothing out of the ordinary, and not too strong on the wing for the first few days. She was mated to a different male, her present companion.

Last autumn she was very badly injured by the cock and took weeks to recover from the mauling she received. He also, during the

winter, mysteriously lost the use of two of his toes, and later nearly died of starvation when his tongue was bitten in a fight, and for weeks he could not eat proper food. They were therefore anything but a promising breeding pair for 1929 and I was rather surprised when they nested and had fertile eggs. When the three young birds hatched I supplied, in addition to the ordinary seed mixture, a dish of hemp and sunflower which had been soaked for two or three days in a vessel of veterinary cod-liver oil which had been exposed to the sunlight. The cock partook freely of this seed and I have never, even at liberty, bred better Broadtails than these young Browns—big, strong, and quick to mature. I ought, perhaps, to add that they were on peat-moss, which I find a healthier nest-lining than earth, and that, owing to the presence of a large hole in the tree trunk close to nest level, they had an unusual amount of light and fresh air. I think, however, that it was mainly the cod-liver oil that did the trick and next year I intend to make further experiments with Parrakeets that are actually rearing young. Some species, like Turquoisines, do not seem to like the taste of the oil-soaked seed and will hardly touch it, while, as part of the general food of Parrot-like birds, it is probably much too rich and stimulating. For special occasions, however, it may be a valuable supplement to the ordinary diet.

TAVISTOCK.

MASKED LOVEBIRDS AT LIBERTY

SIR,—I have been successful in breeding the Masked Lovebird at liberty. A couple (I am not sure that they were a true pair) passed through the recent severe winter in safety and in May I released four more. When I returned home in September there were three old birds to be seen about the garden whose not too friendly attitude towards each other argued the possibility of sitting mates. The other day, while watching birds coming in to drink and bathe at the shrinking remnants of the drought-stricken pond, my attention was attracted by a Masked Lovebird whose colouration seemed less brilliant than that of an adult and the glass quickly confirmed the fact that it was a fine,

well-grown youngster. Others have since appeared and now feed with the parents on the seed tray.

As I have said before, *Agapornis personata* seems well worth a more extensive trial as a liberty bird, being, by reason of its roosting habits, one of the very few small Parrakeets which are safe from the Brown Owl. All that is needed is an adequate supply of logs and boxes fastened to the trunks of large trees at a fair height from the ground and provided with unenlargeable entrance holes which will admit a Lovebird but exclude a Starling. At least one box must be supplied for every two birds and, as the stock increases by breeding, so must the supply of boxes be at once increased. It appears to be the habit of these Lovebirds to seek out and prepare for their fully-fledged young a dormitory as soon as they have left the home nest. Such concern for the housing of their almost independent offspring is unusual among birds, but is probably necessary to the continuance of the species, a Lovebird without a sleeping log being not only exposed to the attacks of many nocturnal enemies, but also prone to contract a bad chill.

At liberty Masked Lovebirds appear exceedingly inoffensive. I have never known them damage fruit, fruit-tree buds, or flowers; and so long as they are not molested, they show no inclination to attack other birds, even when they are feeding on the same tray. Although in confinement not particularly keen on green food, at liberty they spend a good deal of time seeking delicacies among the turf, and when so engaged present a pretty and attractive sight.

TAVISTOCK.

REEVE'S PHEASANTS IN AUSTRALIA

SIR,—The June issue of the AVICULTURAL MAGAZINE is just to hand, and, through a letter from Mr. G. Beever on Reeve's Pheasants and an editorial article entitled "A Fine Collection of Papuan Birds", is of more than usual interest to the writer. Mr. F. S. Mayer, who is responsible for Mr. Spedan Lewis' rare collection of birds, is a friend and neighbour of mine here, and is indirectly associated with the

appended narrative which has considerable bearing on Mr. Beever's query about barren hens and infertility associated with this handsome Pheasant.

Some three years ago Mr. Mayer returned from the homeland with a large collection of birds, including two pairs of Reeves. I at that time owned a pair of this species, the hen a generous layer and all eggs fertile, but the chickens difficult to rear.

I was pleased to have the opportunity of securing the two imported pairs from Mr. Mayer, and, being rather limited in accommodation for my various sorts, parted with my Australian-bred Reeves and duly installed the healthy and good-looking Britishers. Later I disposed of one of the above pairs, and as the initial breeding month for Pheasant hens here is October, I anxiously awaited results. The season extends to about the end of the year, and during that time the birds regularly visited the usual laying seclusion, but not an egg was produced. I interpreted the disappointing feature to the change of season and awaited another year's result.

The second season ended with exactly similar results—not an egg, although both birds were apparently healthy. Having always a great liking for this Pheasant, I wrote to the purchaser of the second pair, asking for his experience with the birds and could he sell me a young pair from them. Here is his reply:—"The Reeves have not laid an egg during the two seasons, and I do not think they will, as every opportunity has been in their favour."

The above are two more instances of non-laying as mentioned by Mr. Beever, who is desirous to know if any reader can explain.

I have had twelve years' experience with Reeves, and never previously knew or heard of a barren hen. My conclusion is that the non-laying is probably an inherent trait in some English strains, and those introduced by Mr. Mayer may have been related to these.

Regarding infertile eggs, the most extensive Pheasant breeder in Australia is Mr. Alan Jaques, of Balwyn, Victoria, his stock of eight or nine varieties frequently reaching 300.

Occasionally, when I am short of a bird, I have only to write to him, and in two or three days I have it by rail, a 17-hour journey from Melbourne (Victoria) to Sydney.

As the breeding season is approaching, and being anxious to have a pair of Reeves, I communicated with Mr. Jaques some days ago. His reply is as follows: "Last year I had one Reeves chicken out of fifty-four eggs. All the eggs were infertile. I have four old hens and two old cocks, so you see I want new blood badly."

Here is another case of defect in the breed—infertility—to which Mr. Beever refers. Mr. Jaques thinks it is want of new blood, and has some Reeves on the way from England. It is hoped his experience with them will not be similar to those referred to in this communication.

Perhaps some readers may attribute the non-laying and infertility mentioned to our climatic conditions, and to dispel this supposition I may mention that all other varieties of Pheasants breed freely, an infertile egg being a rarity. An instance being that accompanying Mr. Mayer's Reeves from England were Amhersts, Vulturine Guinea Fowls and White Peacocks, all of which bred well with their respective owners.

A future contribution may be in relation to my first season's experience with Peacock Pheasants.

G. BRADSHAW.

N.S.W., AUSTRALIA.

ORIGINAL COLOUR OF BUDGERIGAR

SIR,—The following is an extract from an article I wrote for our Magazine, August, 1918:—

"I cannot help thinking that generations ago the original colour of the Budgerigar was blue, and the yellow has been developed as a more protective colour from the sun. Mr. Willsum and the Rev. J. M. Patterson both agree that Blues must be bred and kept in the shade. In the common Greens the nest plumage is more or less blue, and we know that in all nature, the colour of the young indicates the original colour of the bird or beast. Then, again, blue or grey-blue appears to be a primary colour of nature.

"Therefore, it seems quite possible that if Budgerigars were originally blue, the yellow (a protective colour) came in and produced the green, according to the rule of the survival of the fittest . . ."

Since writing the above, several things have occurred which I think makes it worth while to refer to it again. If the yellow pigment came into the blue and white plumage by reason of environment (strong light or certain kinds of foods) and produced a green and yellow bird, the next change may have been for the blue pigment to disappear altogether, and a yellow bird produced. We know that many yellow Parrakeets have been found in a wild state, showing that the yellow pigment has entirely eliminated the blue.

A blue Lovebird and several blue Parrakeets have been found in a wild state, and may possibly be a throw-back to a remote ancestor. This theory seems to be somewhat strengthened by an article on "The Yellow-breasted Cissa" by Mon. Delacour in our Magazine, December, 1927, and other articles and letters on colour changes.

From M. Delacour's article, it appears that in the shade and without animal food, the Cissa moults out blue and white, but as a strong light on a preserved skin has the same effect it would appear that in this case animal food has more to do with colour change than light.

Many white substances, if left exposed to the sun and atmosphere, turn yellow.

White poultry for show purposes are entirely ruined if kept in a strong light or fed on Indian corn: they get a strong yellow tint in their plumage.

In reference to the Cissa, if my theory is correct, it would appear that the change in colour was much later than in the Budgerigar, as a yellow Cissa is not known up to now, and the yellow pigment does not seem to be so fixed . . .

It would be interesting to know the nest plumage of this bird.

JOHN W. MARSDEN.

[It is difficult to see how the question as to what was the original colour of the Budgerigar or the ancestor from which it sprang can ever be proved, but since green is a more common colour in Parrots than blue, why should it ever have been otherwise? The blue Budgerigar of captivity is a degenerate creature that is lacking in one of the pigments that make up the normal colour of the species, just as an albino is lacking in all pigment. Would Mr. Marsden suggest that

a white Blackbird represented the original type of its species and that the dark pigment had been subsequently evolved for protection ? It would be difficult to prove one way or the other.—ED.]

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In *The Field-book of a Jungle-Wallah* Dr. Charles Hose, who has had many years' experience of jungle life, has given us a most interesting account of the wild life of the territory of Sarawak in the north-west of Borneo. The book consists of a series of chapters, written in a delightfully chatty style, on the most interesting objects in the fauna and flora which the author has observed, and while the several branches of natural history are dealt with the birds are given a very fair proportion of the author's attention, and those who love wild life cannot fail to enjoy the book, which is published by Messrs. H. F. and G. Witherby, of 326 High Holborn, at 12s. 6d. net.

ELECTION OF OFFICERS FOR THE YEAR

1930

The Council propose that the Hon. Mrs. Algernon Bourke and Miss E. F. Chawner retire from the Council by seniority and that, Major Snape having resigned from the Council, the following three members be elected to fill the vacancies : Lady Poltimore, Mr. E. G. B. Meade-Waldo and Mr. A. Sherriff.

Also that the Hon. Mrs. Algernon Bourke be elected as auditor and Miss E. F. Chawner as scrutineer.

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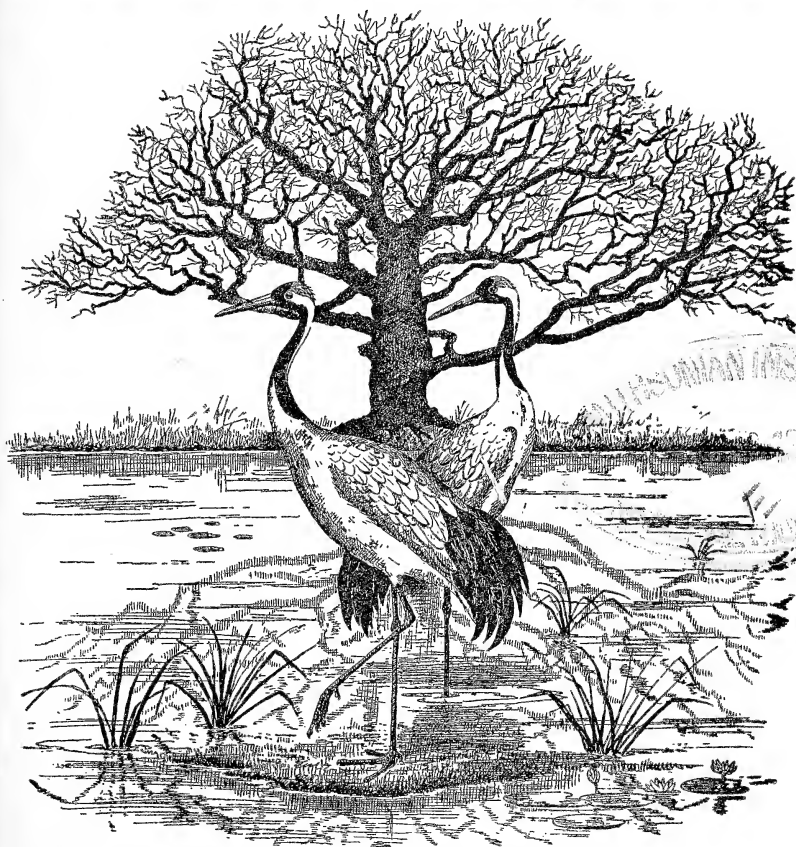
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THE Avicultural Magazine



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FOUNDED 1894

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[Photo D. Seth-Smith.

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IN FREEDOM & CAPTIVITY

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THE BREEDING OF RHEINARDT'S ARGUS PHEASANT IN JAPAN

By PRINCE N. TAKA-TSUKASA

The Crested Argus Pheasant, *Rheinardtius ocellatus ocellatus* (Bp.), frequents the mountains of the interior of Tonkin, and is the bird which Bonaparte introduced to the scientific world by describing it from a few tail-feathers preserved in the Paris Museum. Since then some specimens were sent to the museums in Europe and America, but the birds which Mr. J. Delacour took back with him to France recently are the very first living specimens of the Crested Argus Pheasant to be seen in the living state.

Mr. Delacour sent me a pair of this wonderful Pheasant when he came to Japan in 1925, after completing his tour in Indo-China, but the female died in transit. Mr. Delacour was good enough to send me another female afterwards. Just at that time the house I am now living in was in course of construction, so for a time I kept the male and female separately in my small aviaries.

In 1927 I had my new aviaries finished and put both male and female in one aviary; they are now living very happily together and I have not seen them quarrel once. They spend all day long in the bush which I have had planted in the aviary, and roost on a high perch at night. About February the male commences to cry "Ho-Hoo", with a voice that sounds like a whistle, and in March he began

to display. So far as I have seen it first erects its crest, turns this forward until the front edge touches its head and unfolds the white part of the inner side of the crest until it has the appearance of the flower of a thistle. It draws in its neck, pressing it to the body, and raises its long tail until it reaches about the same height as the head. It then shapes itself just like a straight-lined broad tape from the head to the tail. It runs round the female and stops every now and then, lowers its neck a little, and opens its wings. It does not seem to perform a grand display like that of the Argus Pheasant.

In May, 1928, the female laid some eggs, but as I left an open space in my aviary large enough for the display of the male, and the bush being too light, there was not a place which the hen considered suitable for her eggs. She dropped all the eggs from the perch and they were smashed to pieces. The eggs numbered five in all. Thinking that she might probably lay her eggs in the dark-roofed part of the aviary, I placed a nesting-box close to the ground under the roofed part and had another one placed higher and close to the roof, but the hen used neither of these. Accordingly I began planting a large number of trees during last winter up to this spring before the birds were in their breeding season, and this made a very thick bush in my aviary this year.

About February I began to hear the note "Ho-Hoo" of the male again, and in March he was seen to display furiously. In a short while the female too began to utter "Hoo-hoo" in single note, and on the 16th April she laid the first egg. It was laid in a very shallow, hollow place that she had made inside the bush in one corner of the aviary. I took away the egg at once and the hen laid another one the day after next, the 18th, and stopped laying for some length of time. The first egg had a reddish-buff ground with numerous small brown dots, but the second had a paler ground-colour and was much less spotted than the first one. Eggs measured 64 by 46 and 63 by 45 mm.

For a few days after the hen had stopped laying the parent birds showed no further inclination to breed. After a while the male began to display again, and the female also showed signs of breeding, and she laid an egg on the 10th and another on the 12th of May; next, on the

First Egg.

Second Egg.



1



2

THE BREEDING OF *Rheinardtius ocellatus*.

FIG. 1.—Eggs.

FIG. 2.—Chick at 49 days.

[To face p. 308.



3



4

THE BREEDING OF *Rheinardtius ocellatus*.

FIG. 3.—Chicks with Foster-mother at 60 days.

FIG. 4.—Chick at 92 days.

31st May and 2nd June, and again on the 29th June and 1st July. She laid four clutches of eggs in all this year and then began moulting.

I let a Bantam hen sit on the two eggs of the first clutch on the 25th April ; the second clutch on the 27th May ; the third on 17th June, and the fourth clutch on the 8th July. All the embryos began to break their shells with their bills on the 24th day of incubation, and they were completely hatched on the 25th day.

Primaries of the chick are well developed from birth, and three days after they are hatched their tail-feathers begin to grow. Its subsequent development is shown in the accompanying photographs.

The coloration of the chicks of five days old is as follows. Body, all dark chocolate brown ; there are three broad black lines running from the upper back to the tail, exhibiting yellowish-buff in the parts between the lines. The wing-feathers and the greater coverts are dark brown, with irregular bars of rusty-buff. A dark line runs from the back of the eyes to the ear-coverts and another line branches out at a little way off the back of the eyes and unites with the other line on the opposite side after running through the hind part of the occiput. Tail-feathers are very short and their colour is similar to that of the wing-feathers. Bill, fleshy ; base, dark ; legs and toes are pale fleshy-brown. About one month after it is hatched the legs become dark greyish brown.

The third out of the total four clutches did not hatch as the foster-mother hen quit sitting on the eggs on account of the sudden and excessive rise in temperature. A chick of the first clutch died and proved to be a female. All the others are very hardy and growing in perfect health. Chicks are dieted for the first few days on lettuce chopped fine mixed with some Italian millet. They are fed, thereafter, with a mixture of one part sorghum and one part seeds of the panic-grass, mixed with minced dried fish well moistened with water at first, and the water is gradually drawn off.

BREEDING RESULTS AT THE KESTON FOREIGN BIRD FARM (SEASON 1929)

By E. J. BOOSEY and ALEC BROOKSBANK

Last year we were concerned mainly with breeding-up our stock, and this, our first "selling" season, the following of the rarer Australian Parrakeets have successfully reared young here:—Many-colours, Barrabands, Brown's.¹

A pair of Malabars, being young ones bred last year, did not come into breeding condition until about a month ago when, although they were anxious to do so, it was too late to allow them to breed; and the same applies to a young hen Malabar mated to a cock Plumhead.

Among the less common Finches an aviary containing four pairs of Red-headed Gouldians has perhaps proved more successful than is usual with these birds, eighteen young ones being already fledged, while a nest of four more are about half-grown and another hen is incubating five eggs.

It is, of course, late in the season to "count one's chickens before they are hatched", or even, as in the case of the five half-grown young, when they are hatched, but it seems nevertheless that as eighteen are already fledged we may with luck and a continuance of the mild weather rear as many as twenty-four young from the four pairs.

Some of these will be the second generation bred here, as three of the parents were our own young ones of last year. It is satisfactory to hear from one of our customers of a young Gouldian that we sent him that "it appears appreciably larger in size than several other imported specimens I have at present and is altogether a fine bird"; particularly as we have found this to be the case ourselves, when comparing our own imported birds with their English-bred progeny.

It may possibly be of interest to mention here that, from the correspondence we have had with customers wanting young Gouldians, it would seem that many people are not aware that these birds do not

¹ These birds are a pair we are housing for Lord Tavistock until he moves into a healthier bird district than Warblington, and they have young in the nest again as we write, though whether these ever emerge is doubtful, as we fear they may succumb to the colder nights as soon as their mother stops brooding them.

[The young Brown's is still alive (17th November), and looks as though it may successfully leave the nest in the course of 10 days or so. The number of young Gouldians successfully reared from 4 pairs totals 23.]

come into colour for at least nine months ; the change from the sober green of the nestling to the brilliance of the adult being a comparatively sudden one. The only indication as to sex is that young cocks may sometimes be seen practising the Gouldian "song and dance" at a tender age, but even this is unreliable since they usually stop and fly off as soon as one approaches near enough to identify the dancer ! Cocks may sometimes be distinguished from hens by the shape of the skull, but on the whole it is best to consider young Gouldians as unsexable, for all practical purposes, until they reach full maturity.

Approximately 300 young Zebra Finches have been reared from thirty pairs, but although in theory this constitutes an average of ten young from each pair, in practice some extra prolific individual pairs have produced as many as twenty young ones, other fifteen, other ten, and so on, while one pair at least has produced none at all.

Of Diamond Doves about fifty have been reared, in spite of the fact that Doves are careless parents.

Budgerigars of all colours, of which large numbers have been bred, have averaged about twelve young a pair, several Greys having appeared, which are not just inferior Mauves but a true French Grey.

We have also bred many Blue, Cobalt, Mauve and Grey-washed-Whites, but though in many cases their markings are unusually dark, we hesitate to call them Silverwings as there seems to be a good deal of divergence of opinion as to what actually constitutes a Silverwing. It seems curious that one never sees mention of Yellow-washed-Whites being produced as these should be particularly lovely.

All our birds are kept in unheated, movable outdoor aviaries.

NOTES FROM TRINIDAD

By MRS. DEWAR MURRAY

We fully hoped to remain a long time in Trinidad, but the wet climate proved too much for us, so we had to give it up after a year. I had hoped to have collected a large variety of the birds from round about us, but on arrival I learnt that there had been a law passed prohibiting persons from caging or taking any birds. I soon found that many persons still had some birds, though not in the town, so I wrote to the Colonial Secretary and after a very long delay obtained

permission and started, though too late in the breeding season, to try and get nests for hand-rearing. Herewith a few notes of what I got and what I brought back with me.

The first nest of the Common Loon Bird; family, Tyrannidæ; very brilliant yellow and black, very noisy but very easy to rear. In their own woven nest, nearly 14 inches long and shaped like a bottle, they lived in the verandah, and soon learnt to fly up into a mango-tree for safety at night. They returned for four months to eat bread and milk, but after that joined up with the other flocks of the same species and I saw them no more.

One thing is very curious about the birds in Trinidad. They seem to go about in big flocks, like our Starlings, all the year until the breeding season, and then directly the young can fly and feed they pack again. They fight and quarrel continually, even the tiny Humming Birds fight until the feathers fall, and chase each other from the best-liked flower really viciously.

The next birds I got were a nest of Cœrebidæ, the Venezuelan Flower Pecker (*Cœreba luteola*). They are very small, black with bright canary yellow breasts and a white streak over the eye and curved beaks. The Palois name is "Sucriers", or "Sugar Eaters". These build a nest of moss, which hangs from all the cocoa-trees, lining it with strips of banana leaves, and some cotton flower. They do not seem very particular, as, though this nest was made like a Wren's with entrance low down at side, the next nest I got was flat and made of stiff grass and lined with cotton.

I brought these birds up on Mellin's Food and honey and bread and milk. They still prefer the bread and milk to anything, but drink the Mellin's. Of course they get any fruit going.

I saw the hen bird feeding, and it seemed to be digested honey and nothing else. The parents are most devoted to their young, and the parents of mine would not go away, and eventually actually got one young one away. They have a pretty little song, are very lively and bathe a great deal, charming pets for aviary. We have successfully brought home twenty-four small birds, and they are, in spite of very cold wet weather, healthy and lively. They consist of:

7 cock Sugar Birds, 6 Red-legged, 1 Yellow.

2 hen Red-legged.

1 Yellow hen.

6 Venezuelan Flower Peckers in three pairs, hand-reared.

6 Turquoise Honey-creepers, 2 pairs, 2 odd hens.

The rarest and most lovely birds I had from Trinidad died on the journey. They were a pair of Jacamars (*Galbula ruficauda*), hand-reared. It was terribly cold by the Azores and they both died. They are most beautiful birds about 8 inches in length, the top of the head peacock-blue, shot like a Peacock. The head, nape of neck, and back are shot gold and green, the underparts soft chocolate, the throat white in the male and buff in the female.

The birds of Trinidad are wonderful, and we noted the Mot-mot or King of the Wood, the Snowy Egret, Humming Birds of half a dozen species, fifteen species of Tanagers, Woodpeckers, Wood Hewers, Tyrants or Kiskadees, six species of Honey-eaters (*Cœrchidæ*), and Hang-nests, including the Great Crested Cassique (*Ostinops decumanus*).

BLUE ROBINS

By Dr. M. AMSLER

The following is an account of a partial failure on my part to breed these charming birds on intensive lines.

In the autumn of 1926 I received a pair of adult birds in perfect condition from the Zoological Society, and straightway I made a vow that they should not have cause to regret their generosity. I guarded these birds as the apple of my eye throughout the winter which they spent in a cage kept indoors in my bird-room which is frost-proof except in the coldest weather. In March, 1927, I turned the birds out, and I have already written a short account of their refusal to nest in the shelter of the aviary, and of their immediate choice of a box within a few seconds of its being hung in the outer flight.

The result of this nest was three young, of which one died after leaving the nest.

By an exchange I was able to obtain a mate for one of my young hens, and I started the season of 1928 with two adult pairs.

We will call the old pair No. 1 and the youngsters No. 2.

During 1928 the two pairs, which were of course in separate aviaries, hatched out sixteen young of which four or five lived to leave the nest and not one of which survived for more than a couple of months.

Post-mortem reports on two or three of the dead youngsters showed that they had died of "enteritis"—a very elastic term. This was all very disappointing, as the birds are so ready to nest and are really very well-meaning parents.

During the winter of 1928-9 I thought a good deal about my Blue Birds, and decided that I would produce some healthy young by fair means or foul.

I was very jealous and not a little annoyed that Monsieur Plocq, of La Roche-sur-Yon in the Vendée, had reared quite a number of young from one pair, but I suspected that he had not played the game. So I wrote to him in my best French, laid my cards on the table, and told him that I intended this year to use foster parents or to give the birds their liberty in my small garden.

With typical French courtesy he wrote me a long letter, and it transpired that he had had much the same experience as myself—the young not ever living to leave the nest. He had tried removing the cock with indifferent success, and finally had hand-reared quite a number of young from a few days of age.

Most of us know that M. Plocq is a genius in the rearing of delicate softbills and, indeed, of all sorts of birds, and he had little difficulty with the Blue Robins. This again was somewhat disappointing, as the hand-rearing of birds is hardly a pastime for one of my profession.

As the spring approached I asked a few of my friends to look out for nests of Robin Redbreasts and in the meantime turned out my two pairs of Blue Birds into their respective breeding aviaries. No. 1 pair were put in an enclosure some 30 feet by 10 feet together with a few small birds such as Parrot Finches and Waxbills, they at once took possession of the old box which they had used in 1927 and 1928, and by 1st May had laid five eggs, which by the way is the usual clutch. Meanwhile, everyone was feverishly hunting for a suitable wild Robin's nest, and it is extraordinary how difficult it is to find the right article when you want it. I had several reliable people on the look-out—

bird-watchers, oologists, and bird-ringers—either the nest was not ready or the young had hatched, or the nest was in too public a position. At last a nest was discovered in a private garden : it was built in the ivy covering an outhouse some 12 feet from the ground and appeared to be an ideal site for my experiment. On 12th May my five Blue Robin's eggs, which had been incubated for twelve or thirteen days, were substituted for those of the Redbreasts ; on chipping the latter I judged that the embryos were only four or five days old, and wondered whether the foster-parents would object to their premature and very large chicks if ever they appeared.

With some difficulty I kept away from that nest for a full week ; when I again visited the spot the first sign of life was a Redbreast with an insect in its bill, with hopes rising high I got a ladder and looked into the nest, and to my delight found five young Blue Robins, gaping and fat and about four days old.

Another week's wait and again I saw a Robin carrying live food, but at the same time I also noticed a black Manx cat in the distance, which appeared to have something in its mouth : in fear and trembling I looked into the nest and sure enough there was only one chick left, by no means ready to fly but obviously a Blue Bird judging from the colour at the base of the quills.

I then tracked that cat to the gardener's cottage, and as I approached the loathsome beast dropped something which on closer examination proved its guilt, and if I had had a gun handy that cat would have gone to a hell where it was forced to eat Blue Birds until it exploded ! There was nothing left for me to do but to take the young bird. I easily trapped the two Redbreasts, and within the hour they were feeding their foster-child, which I had placed in their cage in an improvised nest. By 16th June the young Blue Robin, which is now a fine cock in full colour, was independent, and I liberated the Redbreasts, who disappeared at once and never attempted to visit their infant, whose cage stood all day in the garden. Meantime, No. 1 pair had laid five more eggs, which I placed under a Great Tit on 28th May. Three of the eggs hatched on 11th June, and by the 20th two of these chicks had died ; the survivor lingered on for another week, and when he finally perished looked much like a bird of a week

or ten days; it was obvious that the food provided by the Tits was not entirely suitable, and I suspect that they use a certain amount of vegetable food. Indeed, I remember that when I bred the Great Tit here in 1915 the old birds used quite a lot of sunflower seed, and anything of this nature would obviously disagree with young Blue Robins.

By 6th June the old pair of Blue Birds had produced five eggs again, and these I placed, on 11th June, under a Redbreast which a kind patient had found for me.

We knew nothing of this last Robins' nest except that they were sitting on eggs and when I proceeded to remove these I found that two were chipping and that one chick was almost out of the shell. It was too late to take my own eggs home so I took the risk and put them in instead of the three Robin's eggs with small hope that the foster-parents would begin again as it were and sit another five or six days. I was kept in telephonic communication as to the movements of the birds: first "they are sitting tight" and a few days later, "three chicks have hatched." I consider this very wonderful, for the Redbreasts must surely have felt and heard their own eggs chipping, notwithstanding which they continued to sit steadily for another six days on eggs which were obviously not their own. Possibly they were attracted by the size and colour of the present I had made them!

My next news was that one of the chicks had disappeared, and a couple of days later that one had been picked up on the ground with a wound on its body. It was obviously time to interfere, so again I took away the chick which was now ten days old, and set my trap for the parents. I was only able to catch one of these and saw no sign of the other. When we got home I again put the chick in an artificial nest with its parent, but on this occasion she (or was it he?) did not do her duty. We left the youngster in the cage but occasionally fed it by hand in the hope that the Redbreast would change her mind, but after a couple of days the Blue Bird was found lying on its back outside the nest practically dead and was only restored by means of warmth and brandy: it was now twelve or thirteen days old and very obstinate, and I had to open its bill and cram it with food until it learned better manners and began to gape. After this all went well,

and everyone who passed the box in which it was kept was instructed to give it a wee morsel occasionally. This young bird soon began to thrive, and before long was pecking at live mealworms when it suddenly died, I believe from an overdose of gentles which I had given it.

The Redbreast had meanwhile been returned to her own home, and I suspect that separation from her mate may have made her refuse to feed the chick when I caged her up. To return to No. 1 pair, on 20th June they had again begun to lay, and it will be seen that there was always an interval of about a week between the removal of their eggs and the production of another clutch.

On this fourth and last occasion only four eggs were laid, and I decided to let them rear their own young if they could; only three young were hatched of which I found one dead at the age of eight days. It was in the corner of the box and had been pushed out of the nest itself. Next day I found another chick in the same position, but he was not dead, so I took both young birds and attempted to hand-rear them. To cut a very long story short one died and the other has turned out a very nice hen and is extremely tame, an attribute which I find rare in this species.

The story of No. 2 pair makes more interesting reading, and is really my reason for publishing these notes.

The aviary which they occupied was only a small affair 10 feet by 6 feet with no shelter beyond a small roof at one end. My original idea was to give these birds their liberty when they had young in the hope that they would collect live food in my garden and supplement their dietary of mealworms, ants' eggs, cockroaches and occasional gentles.

By 8th May the hen was sitting on four eggs, having dropped the fifth in the flight. The eggs began to hatch on the 22nd, on which day I opened the feeding door and let the male out while the female was on her eggs. He showed great excitement and immediately proceeded to fight a cock Shama and the other Blue Robins through the aviary wires. This was a bad beginning and I at last persuaded him to go home with a few mealworms which he carried to the hen in her box. By the following morning two more chicks had hatched, but all were dead.

On 29th May another clutch was started, five eggs being laid, and during the incubation I gave both birds complete liberty by day, closing the door in the late afternoon when both had returned to feed. By this means I gradually accustomed them to a state of semi-liberty and they learned their way about the garden and its surroundings. Further, they gradually became accustomed to their neighbours, and fighting at last ceased. On 14th June one chick hatched out, and although both parents appeared to be out and about all the afternoon the remaining four eggs hatched also and all went well for a time.

I at once noticed that the chicks grew much faster than they do when the parents are confined in an aviary, but notwithstanding their liberty the old birds always looked to me as their quartermaster and would willingly have allowed me to do all the catering in the way of insects. I made it a rule not to provide these except in the morning and evening, when twenty or thirty mealworms were thrown on the garden path. As time went on and the young grew I increased the number of mealworms and also provided lunch at midday in the shape of ants' eggs and cockroaches. The ants' eggs I sprinkled in the lawn: by this means they were not all found at once and provided several meals, as the old birds frequently returned later and found a few more.

When the young were eleven days old I noticed what I can only describe as a sulky behaviour on the part of the parents. They did not become rabid at the sight of mealworms. Although they each collected ten or a dozen at a time they merely sat on the aviary roof and looked bored; on looking into the nest-box I found one dead chick and removed it, thinking this might be the cause of the trouble. For some reason I was unable to stay to watch whether feeding was resumed, but the following morning my man came to me with a very sad face and the remaining four chicks cold and stiff.

I have never been able to understand this sudden change in the old birds' behaviour, but I have not ceased to regret that I did not at once take the young to hand-rear as soon as I noticed that all was not well.

So far I have said nothing of the charm of seeing these lovely birds flitting hither and thither in complete freedom. The male is always a lovely bird, but to see him hovering in the sun or alighting on a

branch with the typical upward flap of the wings is a sight never to be forgotten.

I became quite tired of people calling to "see the blue birds flying loose", and I was always obliged to produce a few mealworms to prove that they were really feeding young. Perhaps the most wonderful or most striking point in their behaviour was their unerring flight through the small aviary feeding door from any point or any angle. Once they had killed or broken up their prey they would swoop like hawks through that tiny door and with a twist up again would disappear like a flash into the nest-box.

So far my experiment had been a failure, two nests of young—dead at twelve hours and twelve days respectively—I had done my best and fallen far short of success, but I had noticed that the old birds and more especially the cock often inspected nest-boxes exactly similar to their own which are hung in various parts of the garden, and decided that the birds could do their worst and even fly right away if they wished.

The aviary was left open day and night and they were given their ordinary soft food and a very few mealworms daily; there was no sign of their straying far although they occasionally disappeared for an hour or so, but within two days they had completed a nest in a box hung on an outhouse some 40 yards from their own aviary. On 2nd July the first egg was laid: this was six days after the death of the chicks. Four eggs were laid, all of which hatched on the 17th. This time I hardened my heart, and determined that the parents should be forced to work for their young, and for the first ten days I gave very little insect food. It was absolutely necessary that I should inspect the young daily as I intended to hand-feed them on the first sign of things going wrong, and each day I walked warily past the nest to see whether the hen was off; as a rule I was greeted by a squint from a large brown eye at the back of the dark nest-hole, but if she was not there I quickly looked round to see whether she was in sight and hurriedly looked into the nest if I thought I was unobserved. That I seldom succeeded proves what a constant eye birds keep on their young.

Although I could nowhere see the birds, it almost always happened

that just as I was opening the box I would hear a whirr of wings and a "clip, clip" of a bill as one or other of the parents—usually the hen—swooped within inches of my head.

All this did not really disturb the Robins and this time things progressed merrily. Many strange and doubtless wholesome insects were carried to the young, and I occasionally dropped a leaf covered with cabbage butterfly caterpillars and I am sure these must be good, though I was sufficiently unselfish not to sample them myself.

At ten days all was going swimmingly, and as I had rigidly adhered to my decision not to spoil the parents by too much help I had great hopes that I could now supplement the supply of wild insects with the usual menu of ants' eggs, cockroaches, gentles and mealworms. These were of course accepted, and on the thirteenth day fearing that the young might leave the nest prematurely, I put the nest-box in a large wire cage together with the two parents who were easily caught in their own aviary. From now onwards I had to supply an ever-increasing amount of insects, and on 2nd and 3rd August four strong, well-feathered chicks left the nest; they were about seventeen days old. They never looked back and within a week were feeding themselves.

I find that ants' eggs together with a few live ants are a great help in encouraging young birds to feed themselves.

They see the ant carrying an egg, make repeated dabs at it, and finally get either the ant or the egg, or both.

The next step is a mealworm, and when they have mastered this it is not difficult to get them on to soft food by adding a few broken mealworms and ants' eggs when mixing the food.

This, then, is the end of an account of what has been to me a very pleasant summer. The spring was ushered in by very obvious blanks in the garden. Whole bushes and many plants had left me for ever after a winter whose severity we shall not quickly forget, but nature had obviously decided to make it up to us lovers of the open, and as the days lengthened there came a profusion of growth and bloom the like of which I cannot believe has been given to us for many a long year. Now the winter is returning I shall often look back on the past months not as a triumph of aviculture but as a very happy time when

the joy of my garden was greatly enhanced by the presence at every turn of the Blue Birds whose doings I have so haltingly described.

We all look forward to the spring, perhaps no one more so than aviculturists and gardeners, and I am already scheming for an early start with at least one pair of Blue Robins at liberty.

Eggs laid 32, young hatched 26—fully reared 6, not much of a record—let us hope for better results in 1930.

At the time of writing, mid-October, all the young are in practically adult plumage. The change from nestling plumage takes place without any moult, but merely by change of colour or possibly by abrasion.

THE NESTING OF THE THICK-BILLED WEAVER (*AMBLYOSPIZA ALBIFRONS*)

By W. SHORE-BAILY

These homely looking birds resemble much more the Grosbeaks than they do the Weaver. Nevertheless they are true Weavers and, in spite of their Parrot-like bills, weave a very good nest when suitable materials are at hand. I secured my first pair late in 1926, and previous to that time had never met with them at any of the dealers although I had been visiting their stores more or less regularly for over twenty years. The cock of this pair did not live long, but the hen wintered out during the severe winters of 1927 and 1928, so that we can assume them to be fairly hardy birds. Early this year I was able to get a male from a private importation from East Africa, and later on in the year I got four young birds from Gamages. The East African cock mated up with my old hen about the end of June, and he soon built her a nest in a clump of bullrushes about 4 feet above the water. The nest in shape closely resembled that of the common Red-billed Weaver (*Quelea quelea*), but was of course much bigger. It was attached to two or three of the stouter rushes and was about 8 inches in depth, the entrance hole being on the top side. The hen laid three eggs, white with reddish brown spots, but as far as I could see she took no part in the nest-building. The eggs proved to be infertile, and were removed. Later in July another clutch of eggs was laid in the same nest, but these also proved to be useless. As compared with the nests.

of the Hyphanbornine and Baya Weavers the nests these birds built were not so closely woven, and would not stand up so well against the weather, showing a tendency to collapse after rain. This is quite understandable when you consider the birds' beaks, which are shaped much more like those of Parrots than Weavers. How they can weave at all is a mystery to me. These beaks, by the way, can inflict a very nasty bite. In colour the males are a dark chestnut brown, and the females a lighter brown with a speckled breast. Both sexes have a white wing bar, very conspicuous in flight. The young before their first moult are like the females.

SANDGROUSE

By D. SETH-SMITH

The Sandgrouse (Pteroclidæ), form a very distinct family of game-birds, showing certain affinities to the Pigeons. They are purely terrestrial, possessing very short legs and long pointed wings, and inhabiting desert countries where they feed upon the seeds of various grasses and other plants. Their plumage is mostly of a sandy or buff colour, harmonizing with the surroundings in which they occur. The tarsi and, in some cases, the toes also, are feathered. They are mostly migratory and their flight is extremely rapid and powerful. They nest on the ground, the nest consisting as a rule of a mere scrape in the sand, and the eggs, three to a clutch, are smooth and glossy, rounded at both ends, with brownish surface spots overlying pale purplish markings beneath the surface of the shell. Both sexes undertake the duties of incubation, the female sitting by day and the male at night, and the young, which are covered with down and beautifully marked, are reared on small seeds.

In captivity Sandgrouse thrive best in a dry situation ; a partially covered, well-sheltered aviary with the roof mostly of glass, and a dry sanded or earth floor ; an outer lawn of close-cut grass, and a gravel path suiting them well. They should be fed upon canary and millet and other small seeds and green food, and some species at least are particularly fond of Shepherd's Purse, chickweed, dandelion and watercress. Both the Greater and the Lesser Pintailed Sandgrouse have been bred in captivity by Messrs. Meade-Waldo and St. Quintin,



NEST OF *Amblyospiza albifrons*.

[To face p. 322.]

the former having been the first to observe and describe the remarkable method by which the males of certain, at least, and probably all species, convey water to their young, namely by saturating the plumage of their breasts and under parts in water and then flying to the nest, where the young at once proceed to suck the moisture from these feathers.

Sandgrouse are not often imported, but several species have been kept in aviaries and, where the conditions are suitable, they thrive.

PALLAS'S SANDGROUSE (*Syrrhaptes paradoxus*), is one of two species distinguished by the absence of a hind toe. It occurs in Central Asia and is subject, for some unknown reason, to occasional migrations to Western Europe such as occurred in 1863 and again in 1888, when great numbers spread over Europe and reached the western coasts of the British Isles.

The plumage of the male is sandy with rusty-red throat, a white band flecked with black across the breast, and a large black patch on the abdomen. The female has the sides of the neck spotted with black, a black line below the reddish-buff throat, and no band across the breast.

S. tibetanus differs in having the abdomen white with no black patch.

THE EASTERN GREATER PINTAILED SANDGROUSE (*Pteroclorus alchatus*), has, in the male, the lower breast and abdomen pure white and white bars on the wing-coverts. The throat is black in summer and white in winter. Chest, light rufous; upper parts, olive with a yellowish tinge on each feather. In winter the whole plumage is much duller.

The female has the chest of a much paler rufous than that of the male.

This species occurs in South-Western Asia from Palestine to North-West India and extending southwards to the Persian Gulf.

THE WESTERN GREATER PINTAILED SANDGROUSE (*P. a. pyrenaicus*), is a darker and more richly coloured form of *P. alchatus*, occurring in Southern Europe and North Africa. An account of the breeding of this fine Sandgrouse, with a coloured plate of the adult male and young chick appeared in the AVICULTURAL MAGAZINE for May, 1906.

THE COMMON OR LESSER PINTAILED SANDGROUSE (*P. exustus*), has a very wide range, occurring from West Africa through North and East Africa and South-West Asia to India. It is considerably smaller than the last, and the male has a narrow white and black band across the chest and the lower breast and abdomen deep chestnut brown, while the female has the chest and upper breast buff, spotted with black and the abdomen blackish-brown, barred with rufous-buff. This species has been successfully bred in captivity by Mr. W. H. St. Quintin, who published an account of the event in the AVICULTURAL MAGAZINE of December, 1904.

THE SPOTTED PINTAILED SANDGROUSE (*P. senegallus*), occurs from the Southern Sahara through South-West Asia to North-West India. The male has the chest and upper breast pale fawn-colour, and the middle of the abdomen black. The female has the upper parts of the body and the chest marked with blackish spots.

THE BLACK-BELLIED SANDGROUSE (*Pterocles arenarius*). This is one of the short-tailed Sandgrouse and is found in North Africa, Southern Europe, and Central Asia. It is one of the largest species, and the male may be distinguished by its black abdomen, the throat being chestnut followed by a black band, the back being pale rufous and grey, the feathers having buff-coloured tips. The female has the throat yellowish-white followed by a black band, the chest being pale buff spotted with black, the back barred with black.

THE INDIAN PAINTED SANDGROUSE (*P. fasciatus*), is found only in India, and is distinguished by the presence, in the male, of a pectoral band of three colours, chestnut, buff and black, and the wing-coverts with white and grey bars to the extremity of each feather. The female lacks the pectoral band.

THE AFRICAN PAINTED SANDGROUSE (*P. quadricinctus*), closely resembles *P. fasciatus*, but may be distinguished by the wing-coverts of the male being barred with black.

THE CORONATED SANDGROUSE (*P. coronatus*), occurs in North-Eastern Africa and South-Western Asia and has been rarely imported. The male has the throat yellow, divided for about half its length by a black bar, surrounding the gape. A white patch on the forehead. The female lacks the black bar on the throat.

WEAVERS AT LIBERTY

By GORDON MAYNARD

I was very fascinated by the article in the *AVICULTURAL MAGAZINE* of November, 1928, by the Marquess of Tavistock, giving his interesting account of Foreign Birds at Liberty.

Although at the time I was quite a novice at aviculture, I felt I must try and make a similar experiment.

On the 21st May, I purchased twelve newly imported Orange Bishops and constructed a portable cage, 6 ft. by 3 ft. by 6 ft. In this I fixed an old case, about 2 ft. 6 in. square, for the birds to shelter in. They were kept in this cage for ten days, and as I had started this experiment rather late, I was afraid that the birds would not have time to settle down and nest when liberated. On the tenth day I opened the front of the cage, naturally expecting the birds to fly away, but to my surprise that same night I found that not one had disappeared. The next day I was passing at the back of the cage with a friend, not thinking about the birds at the time, when two flew out, evidently frightened. I thought it advisable to shut the remaining birds in and to open the cage again on the following day when no visitors were near. To my surprise the next morning I found the two birds which had been liberated sitting on the top of the cage evidently anxious to get in again. I felt certain then that the two at liberty would help to keep the rest of the birds near at hand. The next day all the birds had left, and I think that every day since then, without exception, some of the birds were to be seen flying about the garden, from one spinney to another, just like little balls of fire.

After some weeks it was possible for strangers even to approach within 2 ft. of the birds, and it was a simple matter to discover them, as they invariably perched on the topmost branch of any clump of bushes which attracted them.

A number of nests were made within a very short distance of the house, and certainly young were reared, though I am unable to say how many.

When I started this experiment, I was told that I should be more likely to have success if there were a pond with reeds, etc., near at hand.

Unfortunately I have not got one, but I did not find this any disadvantage. For a few weeks I used to hang millet seed in various parts of the garden, and also trays with millet and canary seed, but I could see that all this was not necessary, as all the birds came back regularly to their old home. The wild birds were very interested when the Weavers came to feed, but I found that the Weavers could hold their own easily with Sparrows and other birds.

I found this one of the most fascinating parts of aviculture, and since I am such a novice and have yet met with so much success, I cannot understand why similar experiments are not more generally attempted. I have persuaded several friends to try next year, and all being well I hope to liberate considerably more birds myself.

Those who are not familiar with the cost may be interested to know that the dozen Weavers cost me 14s. only, and the cage itself need not be elaborate, so that the initial cost is very small. I have already caught up the same number of birds that I liberated, and there are still others which occasionally appear.

MR. GOODFELLOW'S COLLECTION

Mr. Walter Goodfellow arrived home on 9th November from a collecting trip in the East with a collection of about a hundred birds, many of which are new to aviculture, while others are of great rarity. There are six specimens of the remarkable Bald Starling, *Sarcops calvus*—from New Guinea, a wonderful Lory, *Chalcopsittacus duyvenbodei* from the same country, three Black-headed Pittas, *Pitta sordida*, and one Purple Pitta, *P. granatina*, from Borneo; eight Green Broadbills, *Calypomena viridis*, and one Hose's Broadbill, *C. hosei*. There are three Spider-hunters, *Arachnothera modesta* from Sarawak, of a dull greenish above with grey breasts. There is one pair of the splendid Bulwer's Pheasant, *Lobiphasis bulweri*, six Gray's Argus, *Argusianus grayi*, and three species of Firebacks.

A most striking bird is the large Pheasant Cuckoo, *Carpococcyx radiatus*, from Borneo, greenish above, grey below, with a purple tail and black head.

There are examples of three interesting Barbets, the Red-collared *Cyanops henrici*, Scarlet-crowned, *C. mystacophanes*, and the Coral-legged, *Calorhamphus fuliginosus*, also Blue-crowned and Everett's *Tanygnathus*, and Goffin's and Red-vented (Philippine) Cockatoos, not to mention various Sunbirds and Flower-peckers.

Mr. Spedan Lewis, for whom the greater part of this collection was obtained, has presented a large part of it to the Zoological Society.

D. S.-S.

AVICULTURAL NOTES

By THE EDITOR

The splendid results obtained by Messrs. Boosey and Brooksbank as recorded in this issue show what can be done in breeding foreign birds in this country. If only more people would pursue the fascinating hobby of Aviculture on the lines adopted by Messrs. Boosey and Brooksbank there should be no fear of such birds as Gouldians and many others dying out without re-importation.

Mr. Whitley has at the present time in the aviaries of the Primley Zoological Gardens no less than 137 species of Parrots and 10 different Parrot hybrids, surely the most wonderful collection that has ever been got together. There are 12 species of Macaws, 14 of Cockatoos, 19 of Conures, and 19 of Amazon Parrots.

Mrs. Drake sends me from Falmouth a sample of millet spray that was grown by accident on a rubbish heap, and it reminds me of the possibility of growing this and other foods for birds in this country. Both millet and canary seed can be grown quite well in this country providing the summer is a moderately good one, and the seeds given when barely ripe in the ear not only afford great pleasure to all seed-eating birds but provide them with natural and very valuable food. It is well worth while to sow a few patches of such seeds.

Mrs. Drake asks if someone will invent a dye to obviate the necessity of using rings for marking Budgerigars. In two cases her birds have been caught in the wire-netting by their rings and only been rescued just in time. I wonder if others have experienced the same trouble.

In a collection recently received by Messrs. Chapmans from Venezuela were at least three species that are probably new to Aviculture, namely, the Blue-naped Conure, *Pyrrhura emma*, the Olive and Blue Tanager, *Tanagra olivicyanea*, and the Black and Green Tanager, *Calliste nigrivirides*.

CORRESPONDENCE

BREEDING RESULTS

SIR,—My Peters' Firefinches failed me again, and one morning in September I found the male bird dead. The Diamond Doves, Zebra-finches, Bengalese and Golden-breasted Waxbills have bred splendidly, and as for Budgerigars over seventy have been reared from four pairs and still they go on, although I take the eggs away now. A year ago I procured three Giant Whydahs, but they have all turned out to be males; very charming and peaceful birds, but where do the hens go to? My Spreos are all males unfortunately.

(MRS.) K. DRAKE.

[It is better to remove all nesting boxes from Budgerigars than to take away the eggs.—ED.]

HANGING PARROTS

SIR,—I find that the small Hanging Parrots referred to in my recent article are *Loriculus amabilis* of Halmahera and Batchian. The Red-capped of Celebes (*L. stigmatus*) is, as I thought, a different and much larger bird.

TAVISTOCK.

SEX DISTINCTION IN SILVERBILLS

SIR,—Seeing in a recent issue of the AVICULTURAL MAGAZINE Lord Tavistock speaks of the difficulty of sexing Silverbills, it might be of interest to some members to know what an old dealer once told me of the difference in plumage. The cock's flight feathers are edged with black, while the hen's are brown, very slight it is true, but I have always managed to pick out a pair by this.

(MISS) D. E. PITHIE.

THE ORIGINAL COLOUR OF THE BUDGERIGAR

SIR,—In your note to my letter in the November Magazine, you appear to be confusing two very different things: Albinism and Evolution. Albinos may appear under exactly the same conditions as the normal; Evolution is caused by environment. The man who helped some of us in our early days, the late Dr. Greene, did not believe in evolution, if he had been living now he might have changed his views.

I suppose everyone to-day believes that the "Platycercus" are all descended from a common ancestor, and the changes have been caused by environment and have little or nothing to do with Albinism.

It is generally acknowledged that the lion was once a spotted animal, but as far as I know it has never been actually proved.

I grant that green is a commoner colour than blue in Parrots to-day; still; as yellow sometimes appears (the blue pigment being left out) it is possible that in time the blue may be entirely eliminated, then most Parrots will be yellow. You ask me if I suggest "a white Blackbird represents the original type of its species". I say decidedly NO.

A muddy brown and a dirty slate appear to be Nature's original colours. I should say it would be brown, more like the female.

JOHN W. MARSDEN.

A SEMI-BLACK-WINGED PEACOCK

SIR,—I notice in an adult Common Peacock received at the Zoo this year and now on the North Bank, that the outer half of the closed wing is black, with blue gloss on the coverts, and the thighs shaded

with black, much as in the splendid hybrid on the south side near the Bird House. There is, however, no trace of Burmese blood in the head-points or neck colour of the present specimen, and I conclude that it is a semi-mutant and a pure-bred bird; but I should like to know its pedigree. A three-quarter Common quarter Burmese the Zoo had did not show more black on the wing than a common Peacock, but had the pencilling on the wing finer and the neck greener. In all cases of crossing between ordinary Common Peafowl and Blackwings I have seen or read of the offspring were definitely one or the other type.

F. FINN.

HYBRID GUINEA-FOWL AND SOME OTHER HYBRIDS

SIR,—It would be very interesting if Mr. Laidlay would give us the characteristics of his hen Guinea-fowl bred from Mitre \times Vulturine crossed with Mitre \times Domestic, because this cross repeats Darwin's classical one with Pigeons, Black Barb \times White Fantail crossed with Black Barb \times Red Spot—with the important difference that Mr. Laidlay's bird is bred from distinct species, not man-made breeds. Darwin, as is well known, got a Blue-Rock-coloured bird from the above, and thus was able to prove reversion to the Rock Dove, which for other reasons he regarded as the ancestor of tame pigeons.

In fowls he got a bird nearly like the Jungle-fowl from a cross between Black Spanish and White Silky, thus obtaining reversion at once with a single cross.

There are several cases known in which a hybrid has turned out much more like a third species than either of the two concerned in its production, and in some of these the third species is probably older in type than the other two.

The cases I know of are: Common Sheldrake \times African Grey-headed Ruddy Sheldrake; hybrids bred at the Zoo many years ago were more like Australian Sheldrake. These were till lately on view at South Kensington: Common Wigeon \times Chilian Wigeon, bred by Mr. Shore Baily; hybrid very like American Wigeon (*Bird Notes*, Ser. 3, vol. iii, 1920, p. 12. Mikado Pheasant \times Elliot's Pheasant, shown at Zoo during this century; hybrid very like Hume's Pheasant.

Euplocamus (now *Gennæus*) *leucomelanus*, one of the Black-backed

Kaleeges \times Silver Pheasant, recorded by Huet, *Bull. Soc. Acclimatation*, vol. xxxvi, 1889; hybrid resembled Lineated Kaleege.

Not long ago the Zoo was exhibiting a Rhea bred between Darwin's and the Common species; this showed traces of the black breast-mark of the latter and the white spots of the former, but so slightly that at a little distance it looked like a uniform drab bird; its general colour being like that of the young of both. I judge that the young Darwin's is drab like the young Common by having seen patches of this colour among the new dark white-spotted plumage of some young birds. Presumably the ancestral Rhea had a uniform drab coloration.

In all the above cases reversion to an ancestral type seems to be indicated, but in a case when in the nineties a black-and-white Domestic Pigeon bred with an African Half-collared Dove (*Turtur semitorquatus*) in an aviary at St. James's Park the hybrid offspring were uncommonly like Stock Doves, being blue without any noticeable marking except that the end of the tail was noticeably lighter, as in the Dove parent. Here there was reversion to the wild colour of one parent, though not complete, as the black wing-bars of the Blue-rock were absent, and the resemblance to the allied Stock Dove with its nearly plain blue wing was accidental. There are no blue Turtle Doves, and the young plumage of this group is on the whole browner than the adult, while both Rock and Stock Dove show a little brownish colouring in first feather, so that the common ancestor of Turtle Doves and typical Pigeons was in all probability a brown bird.

F. FINN.

A LONG-LIVED SUNBIRD

SIR,—I have just lost a Greater Double-collared Sunbird from South Africa, bought from Hamlyn in full colour in 1920. The bird must have been at least ten years old, as their breeding season being in our winter months, would mean he was hatched in 1919. He was a little feeble the last year, but happy and contented to within an hour of his death, when he just faded out in my hand, from old age. He was always fed on the usual milk and honey mixture, out every day for exercise, and in the summer spent many days in a garden aviary, returning to his cage each evening.

GWENDOLEN BOURKE.

HOODED SISKIN HYBRIDS

SIR,—I kept two hens and the one cock out of the seven three-quarter Canary one-quarter Hooded Siskin hybrids which were reared in my aviary last year. The two hens made nests in bushes and boxes, and sat in them, though they never laid any eggs. The cock paired up to a hen Goldfinch, both birds built the nest in which the Goldfinch laid, but the eggs were infertile, so I suppose these hybrids are incapable of reproduction.

I tried to pair the Hooded Siskin \times Canary with a European Siskin (*Spinus*), but all the hens died, the last in May when I could not get any more.

H. L. SICH.

ANOTHER VARIETY OF BUDGERIGAR

SIR,—The Budgerigar Club is very interested at the moment in a new variety called “Greywings” or “Silverwings.” As I have this year bred five of these birds with a light-blue body tinge, and as I am, I think, the first to breed them with a cobalt tinge (I have three of these latter), I hope that you will allow me to write a few words about them.

The officials of the B.C. have not yet fixed any description for exhibition purposes, nor have they yet decided the name of this new variety. They intend to do so at the next annual meeting at the Crystal Palace in February, when it is hoped that a number will be exhibited in the A.O.C. Class.

Perhaps the most likely name is “Greywings” (the Germans call them “Garufügel”), for these birds differ from all other blue Budgerigars, in that they have waves on the wings and feathers in the tail of a distinctly grey colour. These grey markings are very clear, and the colour factor is, I gather, the same for them as for those on the “apple-green”; indeed, a white Budgerigar compares with a “grey-wing”, very much as a pure yellow compares with an apple-green.

The Swiss name was (and perhaps still is) “Azurblau”. This name refers evidently to the delicate blue tinge, similar to that on a white but deeper, over the body of the bird. It is not a good name,

for it would not include my cobalt-tinged birds, nor the mauve-tinged birds which will no doubt be bred before long. Moreover, the striking point about the birds is the grey wave marking, and not the colour of the body, beautiful though it is.

Another pretty name is "Silverwings". This is taken, I am told, from the Japanese and refers, I suppose, to the silvery appearance of the birds when on the flight. The name seems, however, to fail in that it might equally apply to the so-called bad whites with strong wing pencillings.

The birds might, then, be described shortly as "White Budgerigars with strong mauve, cobalt, or blue suffusion, having very distinct grey markings".

I believe that there is a great future for these "greywings". I have shown my three cobalt "greywings" to several experienced breeders, and also to people who know little about birds, and I think that all agreed that they are the most lovely of all Budgerigars.

DORA E. WALL.

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